PRELIMINARY DRAINAGE REPORT

Plan # _____

Case # 30-DR-2022

Q-S # _____

Artesia

X Accepted (with a number of drainage stipulations)

____ Corrections

M.R. 03/01/2023

Reviewed By Date

Prepared For:

STREET LIGHT RESIDENTIAL
5080 N. 40th Street, Suite 475
Phoenix, AZ 85018



Kimley»Horn

291743000
November 2022
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ARTESIA

Preliminary Drainage Report

LOCATED IN SCOTTSDALE, ARIZONA



NOVEMBER 2022 | VERSION 1

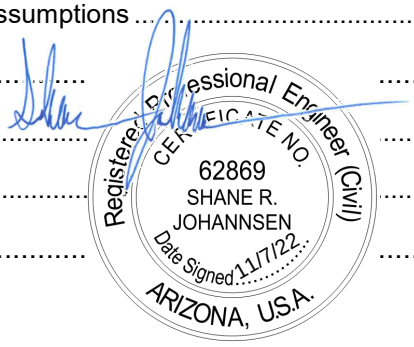
Prepared By:

Kimley»Horn

Kimley»Horn

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Plan # _____

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X Accepted (with a number of drainage stipulations)

____ Corrections

M.R. 03/01/2023

Reviewed By Date

1. INTRODUCTION

1.1 PROJECT NAME, LOCATION, SIZE AND BRIEF DESCRIPTION

This report has been prepared supporting the redesign of the Artesia project located east of Scottsdale Road and north of Indian Bend Road in the City of Scottsdale, Arizona. The site is positioned in the southwest quarter of Section 2, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian in Maricopa County, Arizona. This parcel is bordered to the north by Mummy Mountain Wash and to the south by existing condominiums. The site is further bound on the east by McCormick Ranch Golf Club and Indian Bend Wash. It is bound on the west by Scottsdale Road. See **Figure 1** and **Figure 2** for the location of the site.

The site was originally developed in the early 80's as a Radisson hotel and completely built out with a tennis complex and resort amenities. In 2005, the site was approved as 2-ZN-2005 for 480 residential units on 39+/- acres with an additional 5 acres of commercial property along the Scottsdale Road frontage. In 2008, the project was engineered, platted and the onsite roadway circulation system, utilities and drainage infrastructure was constructed in full. The commercial portion of the site was developed and is currently occupied by the Blue 32 and Roka Akor restaurants along with other retail shops. The live/work units along the Hummingbird entry road were also constructed along with 64 luxury condo units and 23 golf townhomes in the northeast corner of the site. An underground parking garage was constructed in the center of the site under the planned 4 story luxury condominium units, however, the vertical portion of the units were not constructed. The remaining brownstone and golf condominiums along the eastern and southern boundary also were not constructed before the project was put on hold.

The project was rezoned in 2014 to add additional density/units while at the same time providing more open space than the original design. The additional units were added by providing additional floors/building height along with smaller units within the redeveloped portions of the site. The project design plans were accepted in 2018 but the project was again put on hold prior to construction.

Rockpoint is currently developing plans to construct the remainder of the project from where it was left by the original developer and the approved 2018 design while at the same time refining the building products to match today's market conditions. While the site layout remains very similar to the 2008 plans, the project will be developed in 3 phases as follows:

Planning Area 1 (PA-1) – Consists of refining the central residential towers and constructing the vertical portion of the development over the existing underground garage structures. Existing roof drain and storm drain systems constructed with the original construction will continue to be utilized.

Planning Area 2 (PA-2) – Was rezoned in 2014 to allow for more density and development of a tower products. This area surface drains to the storm drain infrastructure within PA-1 and there is no existing drainage infrastructure. These existing drainage patterns will be maintained.

Planning Area 3 (PA-3) – Reconfigures the 10 original brownstone products into several multi-family buildings. Buildings within this area will surface drain to new storm drain infrastructure which will tie into the existing storm drain system.

1.2 TYPE OF REPORT

This Preliminary Drainage Report has been prepared to support the refinement of the Artesia development with regard to drainage and flood control.

1.3 PURPOSE AND OBJECTIVES

The purpose of this report is to demonstrate that stormwater runoff from the proposed development can be adequately handled by existing drainage infrastructure and does not adversely affect downstream properties. This report presents the methodologies, calculations and results that show that all drainage and retention design requirements for the development will meet the drainage standards and guidelines of the City of Scottsdale, Arizona. It is the intent of this development to utilize the same drainage methodologies as originally utilized for the approved Starpointe Artesia project and the approved 2018 Artesia project.

2. DESCRIPTION OF EXISTING DRAINAGE CONDITIONS AND CHARACTERISTICS

2.1 ON-SITE DRAINAGE CONDITIONS

The original Radisson Hotel development discharged the majority of stormwater runoff directly to Mummy Mountain Wash and Indian Bend Wash on the east side of the property without any treatment or detention. A small amount of stormwater was also discharged directly to Scottsdale Road from the properties lying adjacent to Scottsdale Road. Localized flows also discharged directly to Mummy Mountain Wash. Some stormwater from the southern portion of the site previously discharged to the properties directly to the south of the development as well. The 2008 redevelopment of the site handled stormwater very similar to historic conditions; however stormwater no longer discharges to Scottsdale Road or the southern properties and all stormwater runoff is directed to Mummy Mountain Wash and/or the Indian Bend Wash Backwater Area.

An onsite storm drain system was installed with the Starpointe Artesia infrastructure that collects all onsite flows and along with surface drainage, discharges to the Indian Bend Wash at the southeast corner of the site (CP2) without detention or treatment. (See **Figure 3**Error! Reference source not found.)

The results of the Final Drainage Report for Starpointe Artesia by Kimley-Horn and Associates dated July 2007 have been reviewed, accepted and hereby incorporated into this Final Drainage report. A copy of the As-built grading plans for the Starpointe Artesia project are included in **Appendix A**.

Exhibit 1 – Existing Conditions



2.2 OFF-SITE WATERSHED CONDITIONS

A Final Drainage Report was prepared for the 1996 Scottsdale Road Improvements by DMJM+Harris. This report determined that approximately 600 cfs was tributary to the Mummy Mountain Wash crossing of Scottsdale Road. The improvement plans for Scottsdale Road which included widening, storm drain and median improvements also designed catch basins inlets on both the east and west sides of Scottsdale Road in front of the subject property. This storm drain conveys roadway drainage to an existing box culvert at Mummy Mountain Wash. Two additional 10'x3' box culverts were installed under Scottsdale Road at the intersection of Mummy Mountain Wash to convey the aforementioned 600 cfs.

As part of the 2007 redevelopment, a portion of Mummy Mountain Wash channel was filled and LOMR-F was processed through the FEMA process. This portion of the site has already been built out per the

2007 plans and no additional improvements will be constructed adjacent to the Mummy Mountain Wash. as part of this project.

To the east of the site is the McCormick Ranch Golf Club which contains the Indian Bend Wash. The open space on the east side of the property is a backwater area for the Indian Bend Wash. The backwater area has an approximate 4:1 side slope which will be maintained in the proposed condition. A gunite wall with an approximate slope of 2:1 lines a portion of the southern backwater area for approximately 250 feet.

2.3 FLOOD HAZARD ZONES ON THE PROPERTY

Portions of the site are located within both shaded and un-shaded areas of zone "X" on FEMA FIRM map number 04013C1770 M, dated September 18, 2020. Un-shaded zone "X" areas are defined as "areas outside the limits of 500-year floodplain;" and shaded zone "X" areas are defined as "areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with Drainage Basins less than 1 square mile; and areas protected by levees from 100-year flood". The Mummy Mountain Wash is located in flood zone "AE", defined as the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. See **Figure 5**.

3. PROPOSED DRAINAGE PLAN

3.1 GENERAL DESCRIPTION

The proposed redevelopment will for the most part utilize existing drainage patterns and infrastructure installed with the Starpointe Artesia project. Ground level sidewalks and landscape areas are designed to sheet flow to the surrounding streets. In areas where sheet flow is not possible, stormwater is directed to surface level catch basins and drain into the proposed stormwater collection system. The existing stormwater collection system is sized to provide adequate capacity to collect runoff from both the residential and commercial portions of the site. Street capacity will be designed for the 100-year event. In areas where the street cannot convey the 100-year event catch basins are utilized. Additional combination curb inlets will be installed as a part of the system. Ponding at all of these inlets will be contained within the curbs in the 10-year event per the DS&PM. In PA-3, a portion of the street is designed with a one-way cross slope at 2%.

As described above, the stormwater collection system consists of inlets in the roads and courtyards, and pipes conveying stormwater into the Mummy Mountain and Indian Bend Washes. A bubble-up structure has been previously installed to discharge the major storm network to the Indian Bend Wash. The bubble-up structure included an 8-inch drain in the floor of the structure to allow the structure to drain and allow nuisance flows to percolate. It was determined that in order to maintain HGL's lower than on site inlets that the outlet elevation for the bubble-up structure needed to be at a lower elevation, therefore the 60" storm drain line is to be extended towards Indian Bend Wash. In addition to the existing bubble-up structure, a Dual Vortex Separator will be installed downstream to treat the first flush volume generated from the project before onsite flows are released into Indian Bend Wash. Refer to Section 3.4 for further discussion regarding first flush treatment. Once stormwater is treated by the Dual Vortex Separator, stormwater will bubble up via a third structure and the entire system will be drained into Indian Bend

Wash. Stormwater runoff in excess of the first flush volume, or the capacity of the Dual Vortex Separator, will rise up and out of the bubble-up structures and discharge into the Indian Bend Wash.

Stormwater will continue to discharge from the site in 3 general locations. Existing Concentration Point 1 is located at the east end of Mummy Mountain Wash. This concentration point 1 will be unaffected by the proposed project. Concentration Point 2 is located at the ultimate site outfall at the southeast corner of the site. The majority of the site discharges at Concentration Point 2 into Indian Bend Wash. The Final Drainage Report from 2018 shows that the existing concrete spillway has adequate capacity to handle the proposed street flows (See **Appendix C**). The third location is from the perimeter fire access road and open space areas located immediately adjacent to Indian Bend Wash. These areas are localized flows and will sheet flow into the adjacent Indian Bend Wash at periodic low points.

3.2 FUTURE CONDITIONS

The 100-year discharge for the site will not exceed the existing storm drain capacity and will therefore not add any significant demands to existing storm systems.

Lowest floor elevations for all buildings have been set at least 12 inches above the adjacent 100-year post developed high water surface elevation. These lowest floor elevations will provide reasonable protection from the 100-year flood. This includes lowest floor elevations being set above the Regulatory Floodplain Elevation (RFE) adjacent to Indian Bend Wash.

3.3 STORM WATER STORAGE REQUIREMENTS

The site was previously granted a Stormwater Storage Waiver with the 2007 project and again with the 2018 proposed improvements. At that time, storage requirements and in lieu commitments were determined based on Maricopa County Flood Control District and City of Scottsdale guidelines based on the runoff volume generated by disturbed areas during the 100-year, 2-hour rainfall event. A new Stormwater Storage Waiver will be submitted with this project following City approved methodology of the previous waivers. See Appendix D for the updated Stormwater Storage Waiver.

When comparing the new land use for the Artesia project to the original Radisson site, the proposed runoff coefficient for the site is anticipated to be slightly increased. The project is designed to convey all stormwater runoff to the adjacent Indian Bend Wash without negatively impacting any downstream properties.

3.4 FIRST FLUSH TREATMENT

First Flush treatment is provided by an Old Castle Precast Dual-Vortex Separator prior to discharge to McCormick Ranch Golf course.

The first flush flow rates were determined in 2018 based on the City of Phoenix Storm Water Policies and Standards section 6.8.3 with modifications per Hasan Mushtaq and Keith Kesti using the following equation.

Equation 1: Standard Formula for First Flush Flow Rate

$$Q_{FF}=C*I*A$$

Where:

Q_{FF} = Minimum first flush discharge in cfs
C = Runoff coefficient (set to 1.00 for first flush condition)
A = tributary drainage area in acres
I = NOAA 14 100-year 2-hour intensity multiplied by depth ratio (first flush depth divided by 100-year 2-hour depth)

This method will be utilized to calculate first flush flow rates during final design of this project.

3.5 PRE AND POST RUNOFF CHARACTERISTICS

The proposed drainage improvements will be designed so that the overall 100-year discharge exiting the site does not exceed the historic pre-development discharge. No on-site runoff will be directed towards Scottsdale Road, therefore the development will not create any additional impacts on the Scottsdale Road drainage system.

3.6 PROPOSED DRAINAGE STRUCTURES

The proposed project will continue to utilize the existing storm drains, catch basins and inlets installed with the 2007 system. New roof drain connections will be made to the existing system where required to serve the proposed residential units. Entrances to the 2 underground parking garage entrances will be flood proofed to be above the adjacent 100-year BFE in the Indian Bend Wash Backwater area. All proposed drainage structures will be designed in accordance to and comply with the City DS&PM.

3.7 PROJECT PHASING

The project will be developed in Phases with a portion of the site already constructed. PA-1 and PA-3) will be constructed at approximately the same time, while Planning Area 2 adjacent to Indian Bend Wash will be developed after PA-1 and PA-3 construction is completed. All the drainage infrastructure for the site will be constructed in a single phase.

3.8 ADEQ AZPDES REQUIREMENTS

Prior to construction an executed Notice of Intent (NOI) shall be submitted to Arizona Department of Environmental Quality (ADEQ) in conformance with the Arizona Pollution Discharge Elimination System Permit (AZPDES) permit. An approved NOI Certification from ADEQ with an AZCON number will be provided to the City during the Improvement Plans submittal. The NOI and associated storm water management best management practices will remain active on the site until construction is complete and a Notice of Termination is filed with ADEQ in conformance with AZPDES permit.

4. SPECIAL CONDITIONS

4.1 SPECIAL CONDITIONS

A Clean Water Act Section 404 Jurisdictional Delineation was approved by the Army Corps of Engineers on November 3, 2004 showing that the only jurisdictional wash on the property was within the Mummy Mountain Wash channel. No impacts to this wash are proposed with this project therefore this project is not subject to a 404 permit. (**See Appendix B**)

5. DATA ANALYSIS METHODS

5.1 HYDROLOGIC PROCEDURES AND ASSUMPTIONS

Peak flows for both the pre- and post-development conditions for all drainage areas will be calculated using the Rational Method. Peak runoff flows will be calculated for the 2, 10 and 100-year events as required by the City of Scottsdale for the stormwater runoff analysis. Times of concentration and rainfall intensities will be estimated using the City of Scottsdale DS&PM. A minimum time of concentration of 5 minutes will be used. Runoff coefficients will be determined using Figure 4-5 of the DS&PM, using Hydrologic Soil Type “B”. Hydrologic Soil Group “B” was chosen per Table 3.1 in the Drainage Design Manual for Maricopa County.

Adjacent to PA-2 is the Indian Bend Wash which is grass lined. Per the Flood Insurance Study (FIS) for Indian Bend Wash, the average channel velocity is 4.7 ft/sec adjacent to the Artesia development. This is an average velocity for the floodway and the floodplain. The Artesia development project is adjacent to the floodplain and not the floodway, therefore, 4.7 ft//sec is a conservative estimate for velocities along the banks of the channel. Per the Flood Control District of Maricopa County (FCDMC) Hydraulics Manual Table 6.3, a maximum velocity for erosion for grass lined channels is 6.0 ft/sec. Therefor, no erosion protection is needed adjacent to PA-2 along Indian Bend Wash.

5.2 HYDRAULIC PROCEDURES, PARAMETER SELECTION AND ASSUMPTIONS

Hydraulic analysis has been previously conducted for the existing storm drain systems. StormCAD will be used to carry out additional analysis for minor storm drain modifications. A Manning’s roughness coefficient of 0.012 will be used for all HDPE pipes.

6. CONCLUSIONS

6.1 OVERALL PROJECT

- There will be no impacts to the 100-year water surface elevation in Indian Bend Wash.
- Existing storm drain infrastructure installed with 2007 improvements will continue to be utilized to serve the site. Where necessary, storm drain and inlets will be relocated to accommodate revised building footprints.
- A downstream waiver of retention and associated in-lieu fees were previously paid in 2007. The proposed site modifications are anticipated to increase the imperviousness of the site slightly and will require a modified waiver.
- First Flush treatment will be provided at the site outfall location prior to discharge to Indian Bend Wash via a dual vortex interceptor device.
- Lowest floor elevations for all buildings have been set at least 12 inches above the adjacent 100-year post developed high water surface elevation. These lowest floor elevations will provide reasonable protection from the 100-year flood.
- There are no offsite flows impacting the project per the 2018 Final Drainage Report.

6.2 PROJECT PHASING

The redevelopment of this site is expected to be completed in three phases as described in Section 1.1 and 3.7 above.

7. REFERENCES

City of Scottsdale, Arizona. Design Standards and Policies Manual, 2018.

Final Drainage Report for Scottsdale Road Improvements, DMJM+Harris, 1996

Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) Maricopa County, Arizona and Incorporated Areas Panel #04013C1770 M, September 18, 2020

Final Drainage Report for Mummy Mountain Wash Channel Design, Kimley-Horn & Associates, Inc., May 2006.

Final Drainage Report for Artesia Development Partners LLC, Kimley-Horn & Associates, Inc., July 2018.

Drainage Policies and Standards for Maricopa County, 2018.

Figure 1: Vicinity Map

VICINITY MAP FOR ARTESIA SCOTTSDALE, ARIZONA

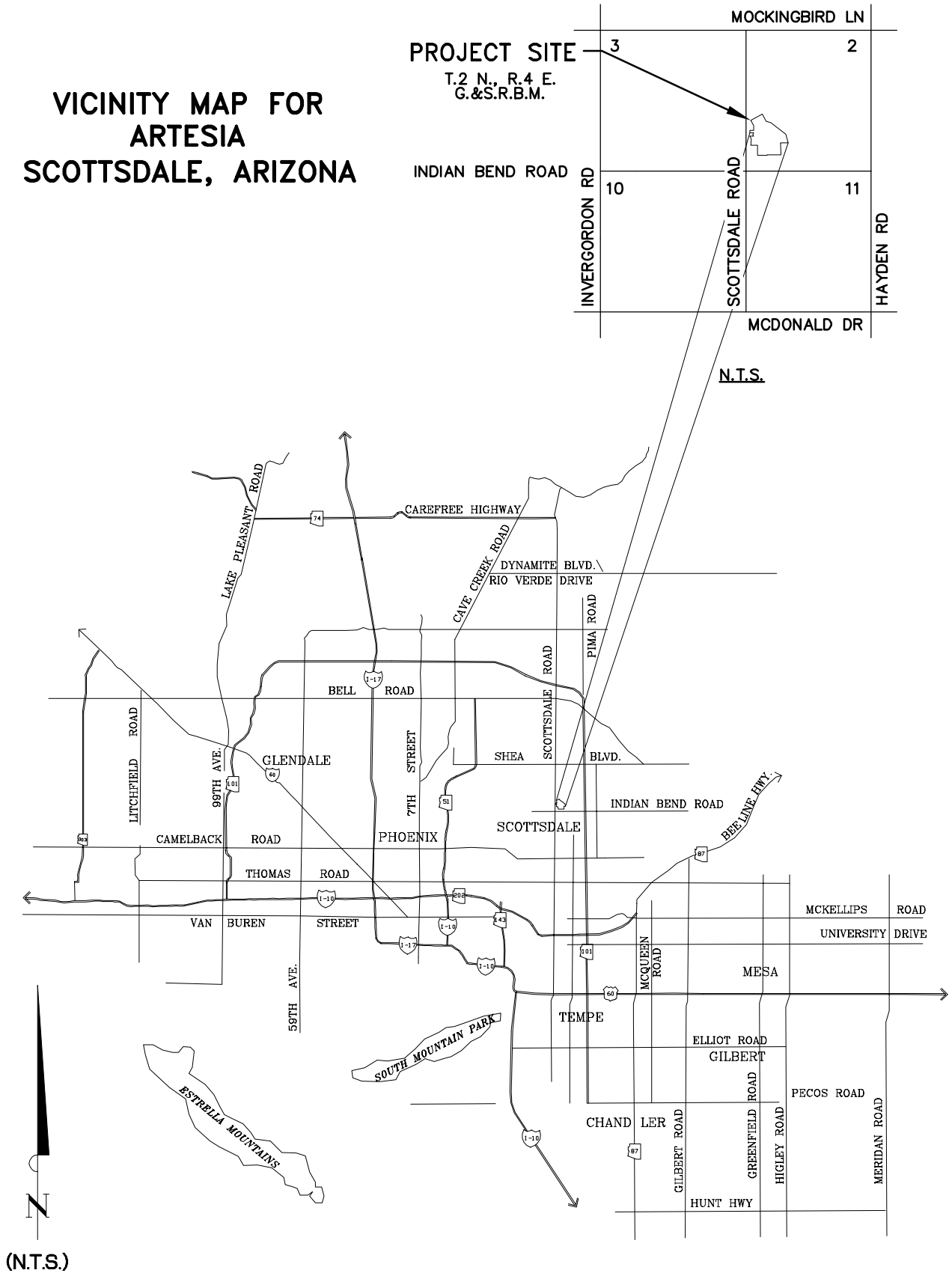


FIGURE 1

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Figure 2: Location Map

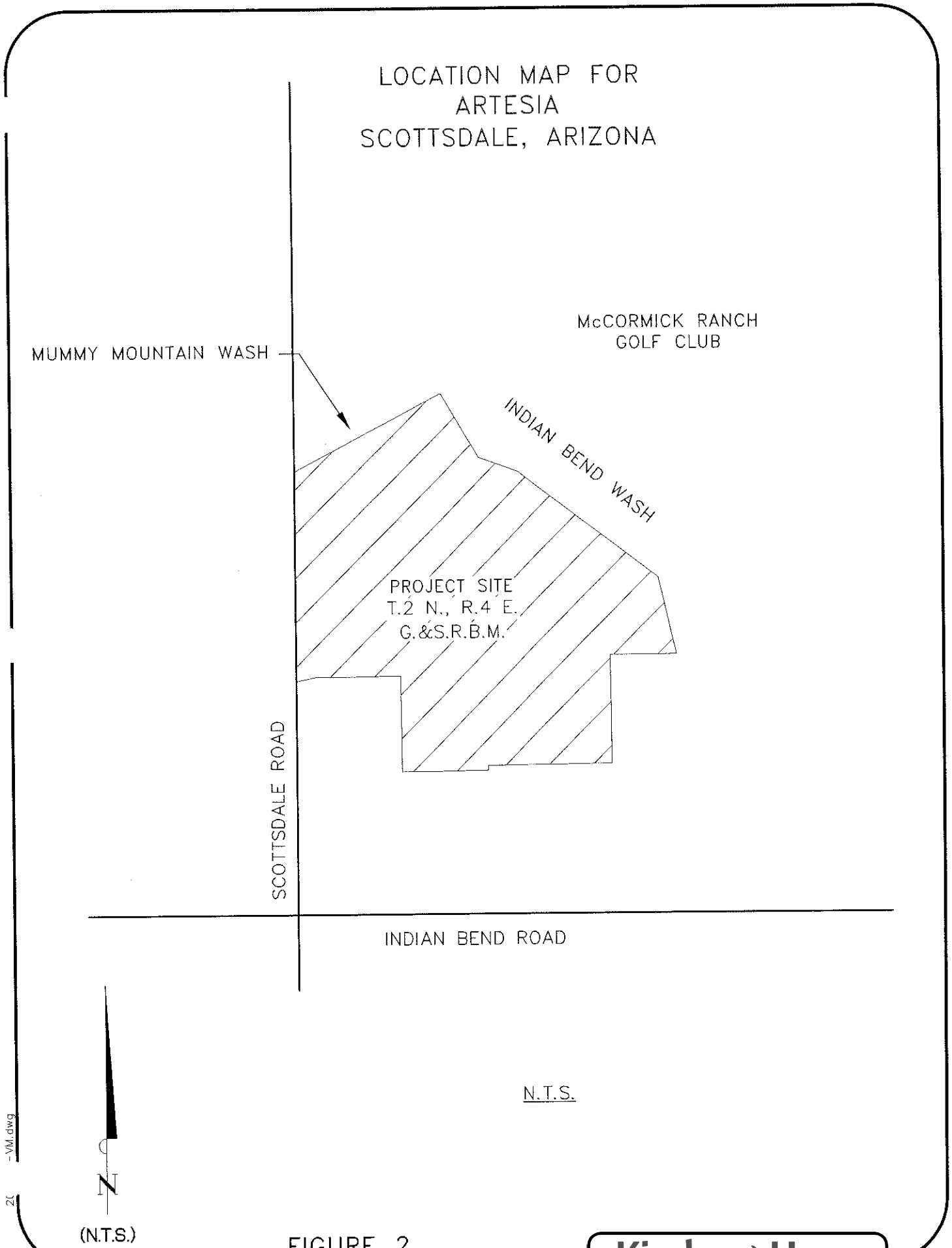


FIGURE 2

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Figure 3: Existing On-Site Conditions 2018 Report



Sub-Basin	Area (acres)	High Elev	Low Elev	Drainage Length	Q_2	Q_{10}	Q_{50}	Q_{100}	Concentration Point
A1	2.37	95.35	90.00	1082	5	8	13	16	2
A2	1.22	95.27	93.64	1340	2	3	5	6	2
A3	1.06	95.00	91.99	1020	2	3	6	6	2
A4	0.63	95.00	91.57	500	2	3	4	5	2
A5	2.12	94.98	92.20	1020	4	6	11	13	2
A6	1.91	96.21	92.00	1250	3	6	10	11	2
A7	0.46	92.50	90.00	310	1	2	3	4	2
A TOTAL					**19**	**31**	**52**	**61**	2
B1	0.56	97.50	93.00	250	2	3	4	5	2
B2*	0.25	-	-	-	1	1	2	2	2
B3*	0.11	-	-	-	0	1	1	1	2
B4*	0.28	-	-	-	1	1	2	2	2
B5	0.81	95.50	92.43	550	2	3	5	6	2
B6	4.72	96.30	92.43	760	10	17	30	34	2
B7*	0.28	-	-	-	1	1	2	2	2
B8*	0.11	-	-	-	0	1	1	1	2
B9*	0.25	-	-	-	1	1	2	2	2
B10	0.27	96.60	94.50	125	1	1	2	2	2
B11	0.43	96.60	94.70	180	1	2	3	4	2
B12*	0.05	-	-	-	0	0	0	0	2
B13	0.53	95.3	92.8	205.0	2	2	4	4	2
B15*	0.05	-	-	-	0	0	0	0	2
B16*	0.25	-	-	-	1	1	2	2	2
B17	0.87	93.64	90.89	115	3	4	6	7	2
B TOTAL					**26**	**39**	**66**	**74**	2
C1*	0.05				0	0	0	0	2
C2	0.12	96.30	95.27	60	0	1	1	1	2
C3*	0.22	-	-	-	1	1	2	2	2
C4	0.30	97.00	94.80	135	1	1	2	3	2
C5*	0.10	-	-	-	0	0	1	1	2
C6	0.23	97.00	94.80	150	1	1	2	2	2
C7	0.57	95.20	84.50	350	2	3	4	5	2
C TOTAL					**5**	**7**	**12**	**14**	2
D1*	0.11	-	-	-	0	1	1	1	2
D2*	0.28	-	-	-	1	1	2	2	2
D3	0.70	94.90	92.42	170	2	3	5	6	2
D4*	0.28	-	-	-	1	1	2	2	2
D5*	0.11	-	-	-	0	1	1	1	2
D6*	0.25	-	-	-	1	1	2	2	2
D7	0.22	95.00	93.55	120	1	1	2	2	2
D8	0.44	95.60	94.31	440	1	2	3	3	2
D9	0.28	95.60	93.95	240	1	1	2	2	2
D10	0.05	-	-	-	0	0	0	0	2
D TOTAL					**8**	**12**	**20**	**21**	2
E1*	0.05	-	-	-	0	0	0	0	2
E2*	0.05	-	-	-	0	0	0	0	2
E3*	0.05	-	-	-	0	0	0	0	2
E TOTAL					**0**	**0**	**0**	**0**	2
SH1	0.09	95.50	94.50	120	0	0	1	1	2
SH2	0.09	95.50	94.10	55	0	0	1	1	2
SH4	0.12	95.00	94.10	85	0	1	1	1	2
SH7	0.08	95.00	94.50	60	0	0	1	1	2
SH8	0.20	95.20	94.50	120	1	1	1	2	2
CY1	0.04	95.00	94.20	40	0	0	0	0	2
CY2	0.05	95.00	94.20	50	0	0	0	0	2
CY3	0.04	95.00	94.20	50	0	0	0	0	2
CY4	0.04	95.00	94.20	40	0	0	0	0	2
CH1	0.12	95.00	94.10	70	0	1	1	1	2
CH2	0.07	95.00	94.10	60	0	0	1	1	2
CH3	0.21	95.00	94.10	120	1	1	2	2	2
CH4	0.20	95.50	94.26	115	1	1	1	2	2
CH6	0.06	95.50	94.26	50	0	0	1	1	2
CH8	0.11	95.50	94.26	65	0	1	1	1	2
TOTAL					**3**	**6**	**11**	**14**	2
F1	0.73	95.78	93.54	241	2	3	5	6	1
F2	0.27	95.50	94.30	107	1	1	2	2	1
TOTAL					**3**	**4**	**7**	**8**	
H1	0.82	97.5	95.5	300	2	4	6	7	1
H2	0.09	96.9	95.7	80	0	0	1	1	1
TOTAL					**2**	**4**	**7**	**8**	
J1	0.92	97.50	94.40	150	3	4	7	8	1

* Drainage area includes only building roof, podium deck and garage area. Areas provided by MEP Engineer and not shown on plan.
Note: Zero values represent flows below 0.5 cfs. A minimum value of 0.5 cfs was used in place of zero values in the model.

LEGEND

- PROPERTY LINE
- SUB-BASIN BOUNDARY
- FLOW LINE
- STORM DRAIN
- CATCH BASIN
- BUBBLE-UP STRUCTURE
- STORM MANHOLE
- DRAINAGE POINT
- DIRECTION OF FLOW
- A1 SUB-BASIN ID

N

GRAPHIC SCALE
80 0 40 80 160
(IN FEET)

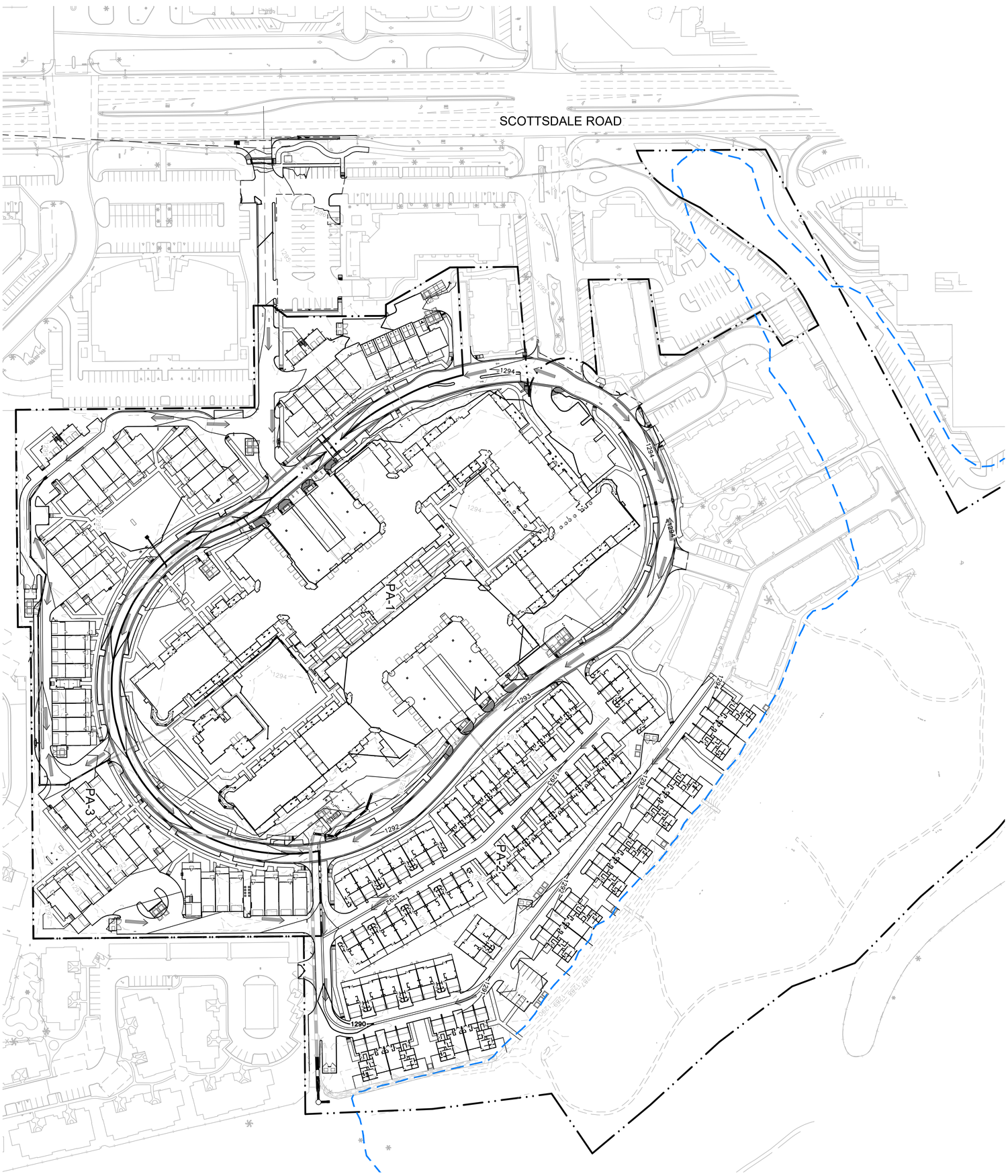
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FIGURE 3: EXISTING ONSITE SUB-BASINS

K:\PHX_Civil\191675002 - SFI Arrivo\CADD\Exhibits\Drainage Exhibit.dwg Jun 17, 2014 matt.anderson
XREFS: X5050208M, X5050208sd, 5050208D01
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Figure 4: Proposed On-Site Conditions

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XREFS: Building Base x-UT-291743000 xBase xBM xRW xV-UT-166007 R1 Artesia PA2 CAD FloorPlan-COR_PA1_SITE FloorPlan-COR_PA1_SITEEXT FloorPlan-COR_PA3_SITE FloorPlan-COR_PA3_SITEEXT
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LEGEND
- RIGHT-OF-WAY
- FLOODPLAIN BOUNDARY
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- FLOW ARROW

GRAPHIC SCALE IN FEET
0 40 80 160

NORTH

PROJECT NO.

DRAWING NAME.

1 OF 1

ARTESIA
PROPOSED ON-SITE

SCALE (H): 1"=XX'
SCALE (V): NONE
DESIGNED BY: SRJ
DRAWN BY: SRJ
CHECKED BY: CB
DATE: 11/2022

Kimley»Horn

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7740 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

NO.	REVISION	DATE

Figure 5: FEMA FIRMETTE Map

National Flood Hazard Layer FIRMette

FEMA

111°55'42"W 33°32'41"N



111°55'5"W 33°32'11"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/27/2022 at 12:32 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix A: As-Built Grading and Drainage Plans

IMPROVEMENT PLANS
FOR
STARPOINTE–ARTESIA
SCOTTSDALE, AZ
A PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, T–2–N, R–4–E, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

3 CHANGES — Professional Engineer Certificate No. 47693 HEATHER HIRSCHBERG Arizona U.S.A. Expires 03/31/11

1 CHANGES — Professional Engineer Certificate No. 30886 MICHAEL L. DELMARTER Arizona U.S.A. Expires 03/31/10

2 CHANGES — Professional Engineer Certificate No. 40659 BRIAN R. GILLIS Arizona U.S.A. EXP 3/31/10

LEGEND

	PROPERTY LINE
	PROPOSED EASEMENT
	EXISTING EASEMENT
SS	PROPOSED SEWER LINE
SS	EXISTING SEWER LINE
W	PROPOSED WATER LINE WITH 3' MIN. COVER
W	PROPOSED WATER LINE WITH 4' MIN. COVER
W	EXISTING WATER LINE
	PROPOSED RETAINING WALL
	PROPOSED RIGHT–OF–WAY
	EXISTING RIGHT–OF–WAY
	PROPOSED EDGE OF PAVEMENT
	EXISTING EDGE OF PAVEMENT
	PROPOSED BACK OF CURB
	EXISTING BACK OF CURB
	PROPOSED SIDEWALK
	EXISTING SIDEWALK
	PROPOSED CENTERLINE
	EXISTING CENTERLINE
	PROPOSED STORM DRAIN
	PROPOSED LIMITS OF GRADING
	PROPOSED RETENTION BASIN
	PROPOSED STREET SIGN AND BASE
	PROPOSED SURVEY MONUMENT PER
	PROPOSED SEWER MANHOLE
	EXISTING SEWER MANHOLE
	PROPOSED STORM DRAIN MANHOLE
	PROPOSED STORM DRAIN CATCH BASIN
	PROPOSED CLEANOUT
	PROPOSED FIRE HYDRANT
	EXISTING FIRE HYDRANT
PUE	PUBLIC UTILITY EASEMENT
R/W	RIGHT–OF–WAY
VNAE	VEHICULAR NON–ACCESS EASEMENT
B/B	BACK OF CURB TO BACK OF CURB
P/L	PROPERTY LINE
BC	BACK OF CURB
FL	FLOW LINE
S/W	PROPOSED SIDEWALK
CL	CENTERLINE
BVC	BEGIN VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
EVC	END VERTICAL CURVE
NAOS	NATURAL AREA OPEN SPACE
NAOS & DE	NATURAL AREA OPEN SPACE AND DRAINAGE EASEMENT
DE	DRAINAGE EASEMENT
SDE	SIGHT DISTANCE EASEMENT
	DRAINAGE FLOW ARROW
	SANITARY SEWER FLOW ARROW
INVERT OF PIPE / TOP OF PIPE	CROSSING INFO
LF_{65}	FINISHED FLOOR ELEVATION

1098-06-18

CIVIL REAPPROVAL

Reapproval #	Revised Sheet No.(s)	Description of Revision(s)
1	C-5, C6, C-8, C-9, C-11, C-22, C-23, C-24, C26, C29, C30, C-31, C-41	REVISED PER SITE CHANGES*
Paving	Appv'd & Held 11-28-07	Traffic N/A
G & D	Appv'd & Held 11-28-07	Planning N/A
W & S	N/A	Fire 11-28-07
Ret. Walls	Appv'd & Held 11-28-07	

Joseph D Mania — Engineering Coordination Mgr. (or designee) — 11/28/07 Date

* SITE CHANGES INCLUDE THE FOLLOWING: WATER METER ADDITION, FLOOD WALL REMOVAL FROM PLANS, GRADING REVISIONS, WATER & SEWER REVISIONS.

1098-06-21

CIVIL REAPPROVAL

Reapproval #	Revised Sheet No.(s)	Description of Revision(s)
2	C6, C7, C9, C16, C16, C18	SEE BELOW
Paving	Appv'd & Held	Traffic N/A
G & D	Appv'd & Held	Planning
W & S	N/A	Fire 3-3-09
Ret. Walls	N/A	

Joseph D Mania — Engineering Coordination Mgr. (or designee) — 3/4/09 Date

SITE CHANGES INCLUDE THE FOLLOWING: PARKING AREA GRADING & PAVING REVISIONS.

CIVIL REAPPROVAL

Reapproval #	Revised Sheet No.(s)	Description of Revision(s)
3	C27, C30	UTILITY ABANDONMENT
Paving	Appv'd & Held 5-21-09	Traffic N/A
G & D	N/A	Planning
W & S	Appv'd & Held 5-21-09	Fire R. Nolte 5/21/09
Ret. Walls	N/A	

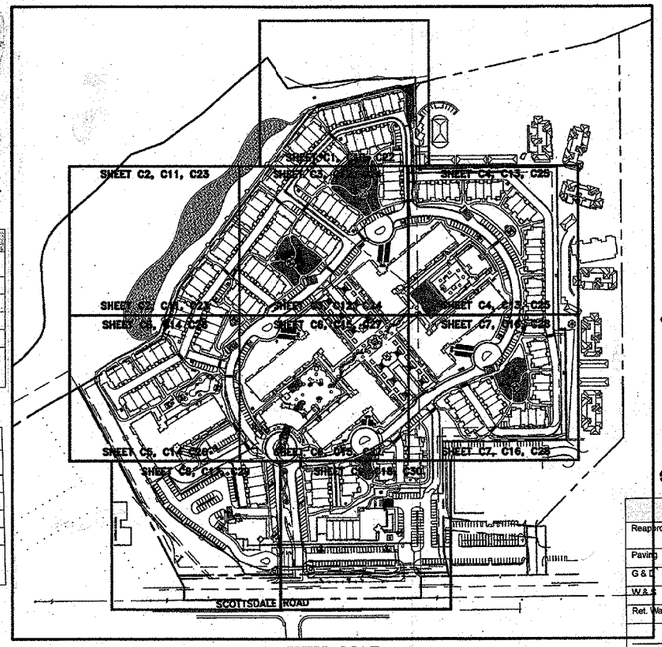
Joseph D Mania — Engineering Coordination Mgr. (or designee) — 5/21/09 Date

1098-06-22

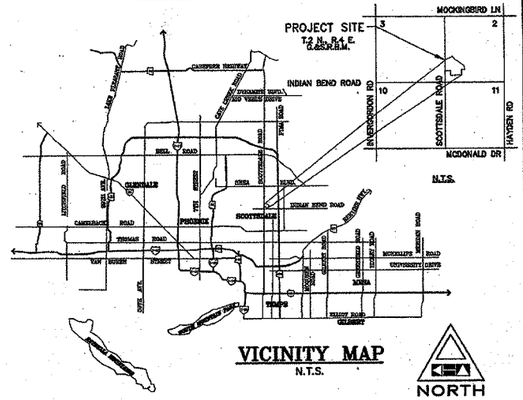
CIVIL REAPPROVAL

Reapproval #	Revised Sheet No.(s)	Description of Revision(s)
4	C27, C30	UTILITY ABANDON., EXTENSION
Paving		Traffic
G & D		Planning
W & S		Fire
Ret. Walls		

Engineering Coordination Mgr. (or designee) — Date



KEY MAP 1"=200'



VICINITY MAP N.T.S.

NORTH

SHEET INDEX:

SHEET NO.	DESCRIPTION
C0	COVER SHEET
C0.1	GENERAL NOTES SHEET
C1–C9	GRADING & DRAINAGE PLANS
C10–C18	HORIZONTAL CONTROL AND PAVING PLANS
C19–C21	DETAILS
C22–C30	UTILITY PLANS
C31–C40	PRIVATE SANITARY SEWER PROFILES
C41	OFFSITE PAVING PLAN
C42	OFFSITE PAVING DETAILS
C43	PAVEMENT MARKINGS
~~S1–S2~~	~~RETAINING WALL DETAILS~~

ENGINEER
KIMLEY–HORN AND ASSOCIATES, INC.
7878 N. 16TH STREET, SUITE 300
PHOENIX, ARIZONA 85020
CONTACT: PAT LOWRY
E–MAIL: PAT.LOWRY@KIMLEY–HORN.COM
PHONE: (602) 944–5500
FAX: (602) 997–9764

OWNER/DEVELOPER
STARPOINTE COMMUNITIES
8135 E. INDIAN BEND RD, SUITE 101
SCOTTSDALE, AZ. 85250
CONACT: MIKE D'ANDREA
E–MAIL: MICHAEL.DANDREA@STARPOINTECOMMUNITIES.NET
PHONE: (480) 609–6779
FAX: (480) 609–6775

4 Changes — Professional Engineer Certificate No. 47693 HEATHER HIRSCHBERG Arizona U.S.A. Expires 03/31/11

1098-06-23

ARCHITECTS
KEPHART
CONTACT: BRIAN GLOVER
770 SHERMAN ST.
DEVER, CO 80203
PHONE: (303) 832 4474

NELSEN ARCHITECTS, INC.
CONTACT: MICHAEL MILBURN
15044 N. SCOTTSDALE RD., SUITE 200
SCOTTSDALE, AZ 85020
PHONE: (480) 949 6800

SURVEYOR
ACZA ENGINEERING, INC.
POST OFFICE BOX 1877
GILBERT, AZ. 85299
TELEPHONE: (480) 813–1931
FAX: (480) 813–1457

BENCHMARK
CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE AT THE INTERSCTION OF SCOTTSDALE RD. AND LINCOLN DR.
ELEV. = 1302.435 (NAVD 88).

I HEREBY CERTIFY THAT ALL ELEVATIONS REPRESENTED ON THIS PLAN ARE BASED ON THE ELEVATION DATUM FOR THE CITY OF SCOTTSDALE BENCHMARK AS PROVIDED ABOVE.

5/3/07
REGISTERED CIVIL ENGINEER — DATE

CIVIL APPROVAL
REVIEW AND RECOMMENDED APPROVAL BY:

PAVING	Pamela Fink 7/3/07	TRAFFIC	Pamela Fink 7/3/07
G & D	Pamela Fink 7/3/07	PLANNING	6.27.07
W & S	Pamela Fink and Water Resources Department 7/3/07	FIRE	6.29.07
RET. WALLS	NA		

ENGINEERING COORDINATION MANAGER (OR DESIGNEE) — 7/3/07 DATE

NO CONFLICT SIGNATURE BLOCK

UTILITY	UTILITY COMPANY	NAME OF COMPANY REPRESENTATIVE	TELEPHONE NUMBER	DATE SIGNED
WATER	CITY OF SCOTTSDALE	N/A	N/A	N/A
SEWER	CITY OF SCOTTSDALE	N/A	N/A	N/A
ELECTRIC	ARIZONA PUBLIC SERVICE	STEVEN R. POLLOCK	(602) 493–4421	9/19/06
TELEPHONE	COX COMMUNICATIONS	WALTER COOMBS	(623) 594–0505	11/08/06
GAS	SOUTHWEST GAS	NORMA C. JARDIN	(602) 484–5344	9/14/06
CABLE	COX COMMUNICATIONS	WALTER COOMBS	(623) 594–0505	11/08/06

ENGINEER'S CERTIFICATION

I, MICHAEL L. DELMARTER, P.E., AS THE ENGINEER OF RECORD FOR THIS DEVELOPMENT, HEREBY CERTIFY THAT ALL UTILITY COMPANIES LISTED ABOVE HAVE BEEN PROVIDED FINAL IMPROVEMENT PLANS FOR REVIEW, AND THAT ALL CONFLICTS IDENTIFIED BY THE UTILITIES HAVE BEEN RESOLVED. IN ADDITION, "NO CONFLICT" FORMS HAVE BEEN OBTAINED FROM EACH UTILITY COMPANY AND ARE INCLUDED IN THIS SUBMITTAL.

SIGNATURE — 5/3/07 DATE

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL # PANEL DATE	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE, USE DEPTH)
045012	04013C1695H	H	SEPT 30, 2005	X, SHADED ZONE X	NONE, < 1'

GENERAL NOTES:
CITY OF SCOTTSDALE GENERAL CONSTRUCTION NOTES FOR PUBLIC WORKS CONSTRUCTION

1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS–OF–WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT IN DETAIL, OF ENGINEERING DESIGNS; THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR REAPPROVAL.
4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHTS–OF–WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO BEGINNING CONSTRUCTION BY CALLING 480–312–5750.
5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 602–263–1100, TWO WORKING DAYS BEFORE EXCAVATION BEGINS. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY.
6. ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS–OF–WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY ONLY AFTER THE REGISTRANT HAS PAID A BASE FEE PLUS A FEE FOR INSPECTION SERVICES. COPIES OF ALL PERMITS MUST BE RETAINED ON–SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
7. ALL EXCAVATION AND GRADING THAT IS NOT IN THE PUBLIC RIGHTS–OF–WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.

ENGINEER'S STATEMENT
THE ENGINEER OF RECORD ON THESE PLANS HAS RECEIVED A COPY OF THE APPROVED STIPULATIONS FOR THIS PROJECT AND HAS DESIGNED THESE PLANS IN CONFORMANCE WITH THE APPROVED STIPULATIONS.

5/3/07
REGISTERED CIVIL ENGINEER — DATE

ENGINEER'S CERTIFICATION
THE LOWEST FLOOR ELEVATION(S) AND/OR FLOODPROOFING ELEVATION(S) ON THIS PLAN ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A 100–YEAR STORM, AND ARE IN ACCORDANCE WITH SCOTTSDALE REVISED CODE, CHAPTER 37– FLOODPLAIN & STORMWATER REGULATION.

5/3/07
REGISTERED CIVIL ENGINEER — DATE

"AS–BUILT CERTIFICATION"
I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED, AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR — DATE — REGISTRATION NUMBER

BASIS OF BEARING
THE BEARING N.0°30'40"W. ON THE MONUMENT LINE OF SCOTTSDALE ROAD AS SHOWN ON PLAT RECORDED IN BOOK 226, PAGE 38, M.C.R.

SITE DATA
GROSS AREA = 1,928,589 S.F. = 44.27 AC.
PARCEL 1 = 933,250 S.F. = 21.42 AC.
PARCEL 2 = 170,823 S.F. = 3.92 AC.
PARCEL 3 = 435,062 S.F. = 9.99 AC.
PARCEL 4 = 368,065 S.F. = 8.45 AC.
PARCEL 8B = 21,389 S.F. = 0.49 AC.

PARCELS 5, 6 & 7 ARE EASEMENTS AND ARE NOT DETERMINED FOR PROPERTY AREA HEREON.

UTILITIES

WATER & SEWER	CITY OF SCOTTSDALE
ELECTRIC	APS
TELEPHONE	COX COMMUNICATIONS
GAS	SOUTHWEST GAS CO.
CABLE T.V.	COX COMMUNICATIONS

ZONING
CURRENT ZONING: ZONING
CASE # 2–ZN–2005
CLASSIFICATION: R–5 (RES.) C–1 (COMM.)

LOT AREA:
GROSS: 44.27 ACRES, 1,928,589 SF (INCLUDES SCOTTSDALE RD.)
NET: 43.29 ACRES, 1,885,602 SF
R–5 PCD: 39.00 ACRES
C–1 PCD: 4.56 ACRES
OPEN SPACE: 10.1 ACRES, 439,956 SF

APPROVAL:
T.S. Chiddix 071713, 071714 — 5/7/07
MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT — DATE

NATIVE PLANT PLAN AND PERMIT # = 1098–06–1

602–263–1100 1–800–STAKE–IT

NO.	REVISION	BY	DATE	APPR.
1	REVISED PER SITE CHANGES	PEL	11/28/07	

Kimley-Horn and Associates, Inc.
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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944–5500

1098-06-18 4 1098-06-23
1098-06-21
1098-06-22

SCALE (H): NONE
SCALE (V): NONE
DESIGNED BY: ANM
DRAWN BY: PLM
CHECKED BY: PEL
DATE: 05–02–07

STARPOINTE–ARTESIA
CIVIL ON–SITE CONSTRUCTION PLANS
COVER SHEET
CITY OF SCOTTSDALE

Professional Engineer Certificate No. 30886 MICHAEL L. DELMARTER Arizona U.S.A. Expires 03/31/10

PROJECT NO. 091505008
DRAWING NAME 505008CV
C–0

PLAN CHECK# 1098–08–2 DR# 8–DR–2006 CASE# 2–ZN–2005 1–GP–2005 NATIVE PLANT# 1098–06–1

K:\...\PHX\505008\CADD\Working Drawings\505008CV.dwg May 02, 2007 andrew.finnson

XREFS: x505008ti x505008bl x505008ts
IF AN XDWG/DWF, DWFX, PWF, OR DGN FILE IS ATTACHED TO THIS DRAWING, IT IS A REPRESENTATION OF THE CONTRACT DRAWINGS LISTED BELOW AND IS PROVIDED AS AN ACCOMMODATION TO THE CONTRACTOR. IN THE EVENT OF A CONFLICT BETWEEN THE CONTRACT DRAWINGS AND THE ELECTRONIC FILE, THE CONTRACT DRAWINGS GOVERN. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ANY CONFLICTS BETWEEN THE ELECTRONIC FILE AND THE CONTRACT DRAWINGS. THE CONTRACTOR AGREES THAT KIMLEY–HORN AND ASSOCIATES, INC. SHALL HAVE NO LIABILITY FOR ANY DAMAGES RESULTING IN ANY WAY FROM THE USE OF THE ELECTRONIC FILE, INCLUDING, BUT NOT LIMITED TO, ANY DAMAGES RESULTING FROM THE INACCURACY OR INCOMPLETENESS OF THE INFORMATION IN THE ELECTRONIC FILE.

LEGAL DESCRIPTION

PARCEL NO. 1

THENCE NORTH 89°29'20" EAST 1565.45 FEET TO THE TRUE POINT OF BEGINNING; THENCE ALONG A CURVE TO THE RIGHT WHOSE RADIUS IS 180.00 FEET THROUGH A CENTRAL ANGLE OF 53°00' COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE NORTH 00°30'40" WEST ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 580.00 FEET;

THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 2; THENCE ALONG THE SOUTHERLY LINE OF SAID NORTH HALF, SOUTH 89°03'25" EAST 40.01 FEET; THENCE IN A DIRECT LINE WITH THE NORTHEAST CORNER OF SAID NORTH HALF, NORTH 62°10'22" EAST 28.14 FEET TO A POINT ON A LINE PARALLEL WITH AND DISTANT EASTERLY 65.00 FEET AS MEASURED AT RIGHT ANGLES TO THE WESTERLY LINE OF SAID SECTION 2, SAID POINT BEING REFERRED TO AS "POINT A" FOR THE PURPOSE OF THIS DESCRIPTION; THENCE CONTINUING ALONG SAID DIRECT LINE NORTH 62°10'22" EAST 657.46 FEET TO THE NORTHEAST CORNER OF SAID NORTH HALF; THENCE SOUTH 30°58'31" EAST 292.85 FEET; THENCE SOUTH 70°09'50" EAST 167.65 FEET; THENCE SOUTH 52°41'30" EAST 427.67 FEET; THENCE SOUTH 37°20'16" WEST 583.38 FEET; THENCE SOUTH 89°29'20" WEST 934.69 FEET TO A POINT ON THE WESTERLY LINE OF SAID SOUTHWEST QUARTER OF SECTION 2 DISTANT SOUTHERLY 720.00 FEET TO THE POINT OF BEGINNING; THENCE ALONG SAID WESTERLY LINE NORTH 00°30'40" WEST 720.00 FEET TO THE POINT OF BEGINNING.

EXCEPT ALL GROUNDWATERS UNDERLYING SAID PROPERTY AS RESERVED IN DEED RECORDED IN DOCKET 10454, PAGE 1224, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO. 2

THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 2; THENCE NORTH 00°30'40" WEST ALONG THE WEST ALONG THE WEST LINE OF SAID SECTION 2 A DISTANCE OF 930.66 FEET; THENCE NORTH 89°29'20" EAST 934.69 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING NORTH 89°29'20" EAST 630.76 FEET; THENCE NORTH 13°08'50" WEST 308.81 FEET; THENCE NORTH 52°41'30" WEST 259.83 FEET; THENCE SOUTH 37°20'16" WEST 583.38 FEET TO THE TRUE POINT OF BEGINNING;

EXCEPT ALL GROUNDWATERS UNDERLYING SAID PROPERTY AS RESERVED IN DEED RECORDED IN DOCKET 10454, PAGE 1224, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO. 3

THE PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 2; THENCE NORTH 00°30'40" WEST ALONG THE WEST LINE OF SAID SECTION 2, A DISTANCE OF 930.66 FEET; THENCE NORTH 13°08'50" WEST 308.81 FEET; THENCE NORTH 52°41'30" WEST 687.50 FEET; THENCE NORTH 70°09'50" WEST 167.65 FEET; THENCE NORTH 30°58'31" WEST 292.85 FEET; THENCE NORTH 30°54'33" WEST 484.63 FEET; THENCE NORTH 72°01'30" EAST 142.86 FEET; THENCE SOUTH 15°53'16" EAST 128.96 FEET; THENCE SOUTH 38°09'39" EAST 73.14 FEET; THENCE NORTH 83°05'20" EAST 45.00 FEET; THENCE SOUTH 32°02'32" EAST 92.52 FEET; THENCE SOUTH 40°01'01" EAST 45.00 FEET; THENCE SOUTH 47°16'09" EAST 55.94 FEET; THENCE ALONG A CURVE TO THE LEFT WHOSE RADIUS IS 120.00 FEET THROUGH A CENTRAL ANGLE OF 46°47'53", AN ARC DISTANCE OF 98.01 FEET; THENCE NORTH 85°55'58" EAST 139.80 FEET; 51", AN ARC DISTANCE OF 166.55 FEET; THENCE SOUTH 41°03'11" EAST 143.00 FEET; THENCE SOUTH 45°18'02" EAST 147.02 FEET; THENCE SOUTH 20°21'05" EAST 105.24 FEET; THENCE SOUTH 37°20'14" EAST 143.85 FEET; THENCE SOUTH 42°21'54" EAST 147.10 FEET; THENCE SOUTH 39°55'17" EAST 118.68 FEET; THENCE SOUTH 55°40'57" WEST 113.76 FEET; THENCE SOUTH 7°21'31" EAST 188.79 FEET; THENCE SOUTH 21°8'53" EAST 199.96 FEET; THENCE SOUTH 89°29'20" WEST 19.46 FEET TO THE TRUE POINT OF BEGINNING.

EXCEPT ALL GROUNDWATERS UNDERLYING SAID PROPERTY AS RESERVED IN DEED RECORDED IN DOCKET 12015, PAGE 544, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO. 4

BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 2; THENCE NORTH 00°30'40" WEST, AN ASSUMED BEARING ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF SECTION 2, FOR A DISTANCE OF 930.66 FEET; THENCE NORTH 89°29'20" EAST FOR A DISTANCE OF 65.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING NORTH 89°29'20" EAST FOR A DISTANCE OF 1240.14 FEET; THENCE SOUTH 00°30'40" EAST FOR A DISTANCE OF 425.00 FEET; THENCE SOUTH 89°29'20" WEST FOR A DISTANCE OF 776.00 FEET; THENCE NORTH 45°30'40" WEST FOR A DISTANCE OF 21.21 FEET; THENCE NORTH 00°30'40" WEST FOR A DISTANCE OF 340.00 FEET; THENCE SOUTH 89°29'20" WEST FOR A DISTANCE OF 374.14 FEET; THENCE SOUTH 78°10'54" WEST FOR A DISTANCE OF 76.48 FEET; THENCE NORTH 00°30'40" WEST PARALLEL TO AND 65.00 FEET EAST OF THE SAID WEST LINE OF SECTION 2, FOR A DISTANCE OF 85.00 FEET TO THE TRUE POINT OF BEGINNING;

EXCEPT ALL GROUNDWATERS UNDERLYING SAID PROPERTY AS RESERVED IN DEED RECORDED IN DOCKET 12632, PAGE 1438, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO. 5

EASEMENT RIGHTS AS SET FORTH IN INSTRUMENT RECORDED OCTOBER 14, 1987 IN 87-632657, OF OFFICIAL RECORDS (EXHIBIT "F") AND CORRECTED IN INSTRUMENT RECORDED APRIL 4, 1989 IN 89-153090, OF OFFICIAL RECORDS, OVER THE FOLLOWING DESCRIBED PROPERTY: THAT PART OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THENCE NORTH 89°29'20" EAST, A DISTANCE OF 65.00 FEET TO A POINT ON THE EAST LINE OF THE WEST 65.00 FEET OF SAID SOUTHWEST QUARTER AND THE POINT OF BEGINNING; THENCE CONTINUING NORTH 89°29'20" EAST, DISTANCE OF 145.68 FEET; THENCE SOUTH 00°30'40" EAST, A DISTANCE OF 28.00 FEET; THENCE SOUTH 89°29'20" WEST, A DISTANCE OF 145.68 FEET TO A POINT ON THE EAST LINE OF THE WEST 65.00 FEET OF SAID SOUTHWEST QUARTER; THENCE NORTH 00°30'40" WEST ALONG SAID EAST LINE A DISTANCE OF 28.00 FEET TO THE POINT OF BEGINNING.

PARCEL NO. 6

EASEMENT RIGHTS AS SET FORTH IN INSTRUMENT RECORDED OCTOBER 14, 1987 IN 87-632657, OF OFFICIAL RECORDS (EXHIBIT "G") AND CORRECTED IN INSTRUMENT RECORDED APRIL 4, 1989 IN 89-153090, OF OFFICIAL RECORDS, OVER THE FOLLOWING DESCRIBED PROPERTY:

THAT PART OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE NORTH 00°30'40" WEST ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 580.00 FEET; THENCE NORTH 89°29'20" EAST A DISTANCE OF 65.00 FEET TO A POINT ON THE EAST LINE OF THE WEST 65.00 FEET OF SAID SOUTHWEST QUARTER AND THE POINT OF BEGINNING; THENCE NORTH 00°30'40" WEST ALONG SAID EAST LINE, A DISTANCE 28.00 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 145.68 FEET; THENCE SOUTH 00°30'40" EAST, A DISTANCE OF 28.00 FEET; THENCE SOUTH 89°29'20" WEST, A DISTANCE OF 145.68 FEET TO THE POINT OF BEGINNING.

PARCEL NO. 7

EASEMENT RIGHTS AS SET FORTH IN INSTRUMENT RECORDED OCTOBER 14, 1987 IN 87-632658, OF OFFICIAL RECORDS (EXHIBIT "D") OVER THE FOLLOWING DESCRIBED PROPERTY:

THAT PART OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE NORTH 00°30'40" WEST ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 580.00 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 174.49 FEET TO THE POINT OF BEGINNING; THENCE NORTH 05°23'03" EAST, A DISTANCE OF 282.15 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 36.19 FEET; THENCE SOUTH 05°23'33" WEST, A DISTANCE OF 282.15 FEET; THENCE SOUTH 89°29'20" WEST, A DISTANCE OF 36.19 FEET TO THE POINT OF BEGINNING.

LEGAL DESCRIPTION (CONT.)

PARCEL NO. 8B

THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 2; THENCE NORTH 00°30'40" WEST, ALONG THE WEST LINE OF SAID SECTION 2, A DISTANCE OF 930.66 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 65.00 FEET, TO A POINT ON THE EAST RIGHT OF WAY OF SCOTTSDALE ROAD;
THENCE SOUTH 00°30'40" EAST, ALONG SAID RIGHT OF WAY, A DISTANCE OF 85.00 FEET; THENCE NORTH 78°10'45" EAST, A DISTANCE OF 76.48 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 333.64 FEET, TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 89°29'20" EAST, A DISTANCE OF 40.50 FEET; THENCE SOUTH 00°30'40" EAST, A DISTANCE OF 340.00 FEET; THENCE SOUTH 45° 30'40" EAST, A DISTANCE OF 21.21 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 286.05 FEET; THENCE SOUTH 00°30'40" EAST, A DISTANCE OF 20.20 FEET; THENCE SOUTH 89°29'20" WEST, A DISTANCE OF 341.55 FEET; THENCE NORTH 00°30'40" WEST, A DISTANCE OF 375.20 FEET, TO THE TRUE POINT OF BEGINNING.

TOGETHER WITH EASEMENT OF ENJOYMENT OF ASSOCIATION LAND CONTAINED IN DECLARATION OF COVENANTS, CONDITIONS, ASSESSMENTS, CHARGES, SERVITUDES, LIENS, RESERVATIONS, AND EASEMENTS FOR MCCORMICK RANCH RECORDED DECEMBER 29, 1971 IN DOCKET 9148, PAGE 706.

TOGETHER WITH DRIVEWAY EASEMENT ABUTTING PARCEL 4 FOR THE BENEFIT OF PARCEL 4 AND FOR THE FURTHER BENEFIT OF PARCELS 1, 2 AND 3 RECORDED IN 87-632658.

TOGETHER WITH DECLARATION CREATING RECORDED OCTOBER 14, 1987 IN 87-632657 AND AFFIDAVIT OF CORRECTION RECORDED IN 89-153090. (IDENTIFIED AS PARCEL 5 AND BENEFITING PARCEL 6 AND FOR THE FURTHER BENEFIT OF PARCELS 7, 4, 1, 2 AND 3)

ENGINEERS NOTES

1. A REASONABLE ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA, HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES AND MAKE THE ENGINEER AWARE, IN ADVANCE OF CONSTRUCTION.
2. ALL CONCRETE EXPOSED AT GROUND SURFACE SHALL BE INTEGRALLY COLORED TO BLEND WITH THE SURROUNDING DESERT. CONTRACTOR TO SUBMIT COLOR CHARTS TO OWNER FOR APPROVAL PRIOR TO ANY COLORED CONCRETE CONSTRUCTION. NO CONCRETE SHALL BE USED IN DEDICATED N.A.O.S. AREAS.
3. REFER TO THE GEOTECHNICAL EVALUATION PREPARED FOR THIS PROJECT, FOR PAVING DESIGNS, SPECIFICATIONS SUB GRADE PREPARATION AND GEOTECHNICAL RECOMMENDATIONS.
4. AREAS WITHIN THE SIGHT DISTANCE TRIANGLE ARE TO BE CLEAR OF LANDSCAPING, SIGNS, OR OTHER VISIBLE OBSTRUCTIONS BETWEEN 2 FEET AND 7 FEET IN HEIGHT AND 6 INCHES MAXIMUM WIDTH OR DIAMETER. TREES WITHIN THE SITE DISTANCE TRIANGLE SHALL HAVE A CANOPY THAT BEGINS AT 7' IN HEIGHT.
5. SIGNS REQUIRE SEPARATE APPROVALS AND PERMITS.
6. ALL GRADED LAND AND AREAS DISTURBED BY ROAD AND UTILITY CONSTRUCTION WILL BE REVEGETATED BY THE DEVELOPER USING NATIVE PLANT SPECIES IN APPROXIMATELY THE SAME DENSITY AS NATURAL DESERT. IRRIGATION WILL BE EITHER HAND-WATERING OR BY AN AUTOMATIC DRIP SYSTEM.

WATER NOTES:

1. WATER METERS, WATER LINE BLOW-OFFS, MAIN LINE VALVES, AND FIRE HYDRANTS SHALL NOT BE CONSTRUCTED IN DRIVEWAYS, SIDEWALKS, WASHES, OR RETENTION AREAS.
2. PACK JOINT METER STOPS OR CORP. STOPS SHALL BE USED EXCLUSIVELY.
3. WATER LINES SHALL BE DISINFECTED IN STRICT CONFORMANCE WITH MAG STANDARD SPECIFICATION #611.9. MAG #611.9 IS HEREWITH AMENDED AS FOLLOWS: "DRY POWDERED CALCIUM-HYPOCHLORITE COMPOUNDS SHALL NOT BE PLACED WITHIN PIPELINES DURING CONSTRUCTION."
4. NOTIFY THE CITY'S FIELD ENGINEERING REPRESENTATIVE AT 391-5750 WHEN READY TO HAVE SAMPLES TAKEN TO DETERMINE WHETHER DISINFECTION HAS BEEN ADEQUATE. SAMPLES ARE COLLECTED BY THE WATER AND WASTEWATER OPERATIONS DIVISION ON MONDAYS AND WEDNESDAYS ONLY.
5. WATER SERVICE LINE CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF SCOTTSDALE STANDARD DETAIL #2330.
6. TRENCHING, BACKFILLING, AND COMPACTING SHALL BE IN ACCORDANCE WITH THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, MARICOPA ASSOCIATION OF GOVERNMENTS (MAG), SECTION 601 (LATEST REVISION). ALL BACKFILL WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE TYPE 1 UNLESS OTHERWISE NOTED. COMPACTION TESTING WILL BE AS REQUIRED BY THE CITY'S FIELD ENGINEERING MANAGER OR HIS/HER AUTHORIZED REPRESENTATIVE.
7. FOR ALL DUCTILE IRON PIPE INSTALLATIONS, SOIL CORROSIVITY TESTS SHALL BE CONDUCTED EVERY 1,000 FEET ALONG THE PROPOSED PIPELINE ROUTE. TESTING PROCEDURES SHALL BE CONDUCTED AND REPORTED IN ACCORDANCE WITH THE AMERICAN DUCTILE IRON PIPE RESEARCH ASSOCIATION. REPORTS SHALL BE FILED WITH THE CITY.
8. THE INSIDE OF ALL GATE VALVES AND BUTTERFLY VALVES SHALL BE EPOXY COATED PER MAG SPECIFICATIONS FOR GATE VALVES.
9. GATE VALVES SHALL BE PROVIDED WITH LOW-ZINC STEMS.
10. ELECTRONIC LOCATORS SHALL BE A SELF-LEVELING TYPE, SHALL OPERATE AT A FREQUENCY OF 145.7Khz, AND SHALL BE CAPABLE OF DETECTION TO A DEPTH OF 4 FEET.
11. ALL JOINT RESTRAINT FITTINGS FOR VALVES, FIRE HYDRANTS, TEES, CROSSES, CORP. STOPS, VERTICAL REALIGNMENTS, AND BENDS TO INCORPORATE "MEG-A-LUG" JOINT RESTRAINT OR C.O.S. APPROVED EQUIVALENT. SEE JOINT RESTRAINT TABLE ON THIS SHEET.
12. DUCTILE IRON PIPE SHALL BE POLYETHYLENE WRAPPED.
13. IN ACCORDANCE WITH AAC R18-4-119, ALL MATERIALS ADDED AFTER JANUARY 1, 1993 WHICH MAY COME IN CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.

SEWER NOTES

1. ALL SANITARY SEWER LINES SHALL BE CONSTRUCTED TO TRUE LINE AND GRADE, 0.05 FEET PER M.A.G. SPECIFICATION 615.2. THE CITY WILL REQUIRE ALL SANITARY SEWER LINES OUTSIDE OF THE 0.05 FEET TOLERANCE FROM DESIGN GRADE TO BE REMOVED AND REPLACED. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES WHICH MAY INCLUDE SURVEYING OF LINES PRIOR TO BACKFILLING AND SETTING OF MANHOLES, AS NECESSARY, TO VERIFY COMPLIANCE.

TABLE OF QUANTITIES
ON-SITE

STORM WATER QUANTITIES		
4' DIA. MANHOLES	5	EA
5' DIA. MANHOLES	8	EA
7' DIA. MANHOLES	1	EA
6" ADS N-12 HDPE STORM DRAIN	7	LF
8" ADS N-12 HDPE STORM DRAIN	584	LF
10" ADS N-12 HDPE STORM DRAIN	578	LF
12" ADS N-12 HDPE STORM DRAIN	474	LF
15" ADS N-12 HDPE STORM DRAIN	31	LF
18" ADS N-12 HDPE STORM DRAIN	1,392	LF
24" ADS N-12 HDPE STORM DRAIN	658	LF
30" ADS N-12 HDPE STORM DRAIN	555	LF
36" ADS N-12 HDPE STORM DRAIN	777	LF
42" ADS N-12 HDPE STORM DRAIN	397	LF
60" ADS N-12 HDPE STORM DRAIN	326	LF
CATCH BASIN & GRATE	7	EA
BUBBLE-UP STRUCTURE	1	EA
8" NYLOPLAST CATCH BASIN	4	EA
12" NYLOPLAST CATCH BASIN	5	EA
15" NYLOPLAST CATCH BASIN	1	EA
18" NYLOPLAST CATCH BASIN	6	EA
24" NYLOPLAST CATCH BASIN	1	EA
30" NYLOPLAST CATCH BASIN	1	EA
18" NYLOPLAST INLINE DRAIN	3	EA
24" NYLOPLAST INLINE DRAIN	1	EA

PAVING QUANTITIES		
2.5" AC/8" ABC	60,190	SF
3" AC/8" ABC	231,186	SF
7" PC/6" ABC	56,367	SF
CONCRETE SIDEWALK	102,867	SF
CONCRETE VALLEY GUTTER	16,481	SF
RIP-RAP, D50 = 12"	635	SF
RIP-RAP, D50 = 6"	705	SF
4" ROLLED CURB & GUTTER (TYPE C)	5,458	LF
6" VERTICAL CURB & GUTTER	6,609	LF
6" SINGLE CURB	8,494	LF
SIDEWALK RAMPS	106	EA
DOUBLE REFUSE ENCLOSURE	4	EA
BLUE FIRE MARKER	14	EA

SANITARY SEWER - PRIVATE		
8" PVC PIPE	6,850	LF
4' DIA. MANHOLES	31	EA
5' DIA. MANHOLES	19	EA
8" SEWER CLEANOUT	14	EA
6" SEWER CLEANOUT	2	EA
12" PVC PIPE	490	LF
6' CONCRETE ENCASEMENT	42	EA
10' CONCRETE ENCASEMENT	14	EA
BUILDING SEWER CONNECTION (4" PVC)	695	LF
BUILDING SEWER CONNECTION (6" PVC)	940	LF
BUILDING SEWER CONNECTION (8" PVC)	30	LF

WATER QUANTITIES - PUBLIC		
8" DIP PIPE	6,980	LF
6" DIP PIPE	415	LF
4" DIP PIPE	218	LF
2-1/2" PVC PIPE	37	LF
2" COPPER PIPE	818	LF
1" LANDSCAPING CONDUIT	174	LF
8" GATE VALVES	32	EA
6" GATE VALVES	16	EA
4" GATE VALVES	5	EA
AIR RELEASE VALVES	3	EA
REMOVE CAP & CONNECT TO EX. WATER	4	EA
10"x10"x8" T.S.V.B.&C	1	EA
10"x10"x8" TEE	1	EA
8"x8"x8" TEE	15	EA
8"x8"x6" TEE	12	EA
FIRE HYDRANT COMPLETE W/ 6" DIP	12	EA
10" X 8" REDUCER	1	EA
8" X 6" REDUCER	1	EA
4" FEBCO BACKFLOW PREVENTION	5	EA
2" FEBCO BACKFLOW PREVENTION	36	EA
SIAMESE CONNECTION	2	EA
4" METER VAULT	6	EA
2" METER BOX	37	EA

WATER QUANTITIES - PRIVATE		
4" DIP PIPE	463	LF
3" DIP PIPE	22	LF
2-1/2" DIP PIPE	9	LF
2" COPPER PIPE	4,599	LF
1-1/4" COPPER PIPE	870	LF
6" FIRE LINE	438	LF

EARTHWORK QUANTITIES

THE QUANTITIES LISTED BELOW ARE FOR PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL MAKE HIS OWN DETERMINATION OF THE QUANTITIES INVOLVED AND BASE HIS BID ON HIS OWN ESTIMATE.

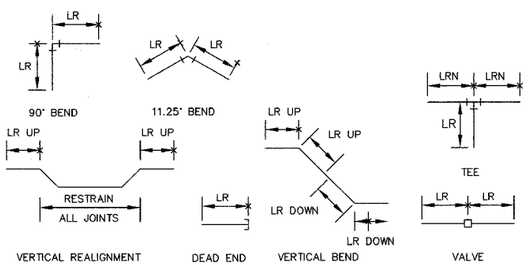
RAW CUT = 89600 CY
RAW FILL = 39230 CY

THE QUANTITIES SHOWN HEREON ARE AN ESTIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES BEFORE BIDDING.

JOINT RESTRAINT TABLE FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP

ITEM	TOTAL LENGTH TO RESTRAIN (LR)
12"x12"x8" TEE	9 (LRN=9)
8"-45° VERTICAL	59 UP, 9 DOWN
8"x8"x8" TEE	17 (LRN=13)
8"x8"x6" TEE	8 (LRN=8)
8"-90° BEND	34
8" VALVES	142
8" DEAD END	142
8"-11.25 BEND	3
FIRE HYDRANT	TOTAL LEAD-IN

(ALL LENGTHS ARE GIVEN IN FEET)



NOTE: 1. MEG-A-LUG RESTRAINT LENGTHS ARE BASED UPON A TEST PRESSURE OF 200 PSI.
2. ON ALL TEE FITTINGS, LRN REPRESENTS THE LENGTH OF PIPE ALONG THE RUN THAT MUST REMAIN SOLID PIPE FREE OF JOINTS.

ALL WATER MAIN FITTINGS FOR VALVES, FIRE HYDRANTS, TEES, CROSSES, DEAD ENDS, BENDS, AND VERTICAL REALIGNMENTS TO INCORPORATE MEG-A-LUG RESTRAINT OR C.O.S. APPROVED EQUIVALENT. DEFLECTIONS AT WATER MAIN JOINTS ARE NOT TO EXCEED MANUFACTURERS RECOMMENDATIONS.

BLUE STAKE, INC.
602-263-1100
1-800-STAKE-IT
(ARIZONA ONLY)

NO.	REVISION	BY	DATE	APPR.
1	QUANTITY UPDATE PER REVISIONS	ACF	1/27/07	PEL

Kimley-Horn and Associates, Inc.
© 2007 KIMLEY-HORN AND ASSOCIATES, INC.
7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

SCALE (H): NONE
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 11-27-07

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GENERAL NOTES
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil)
Certificate No. 31965
JOSHUA G. SANDERS
Date Signed 11/27/07
ARIZONA, U.S.A.

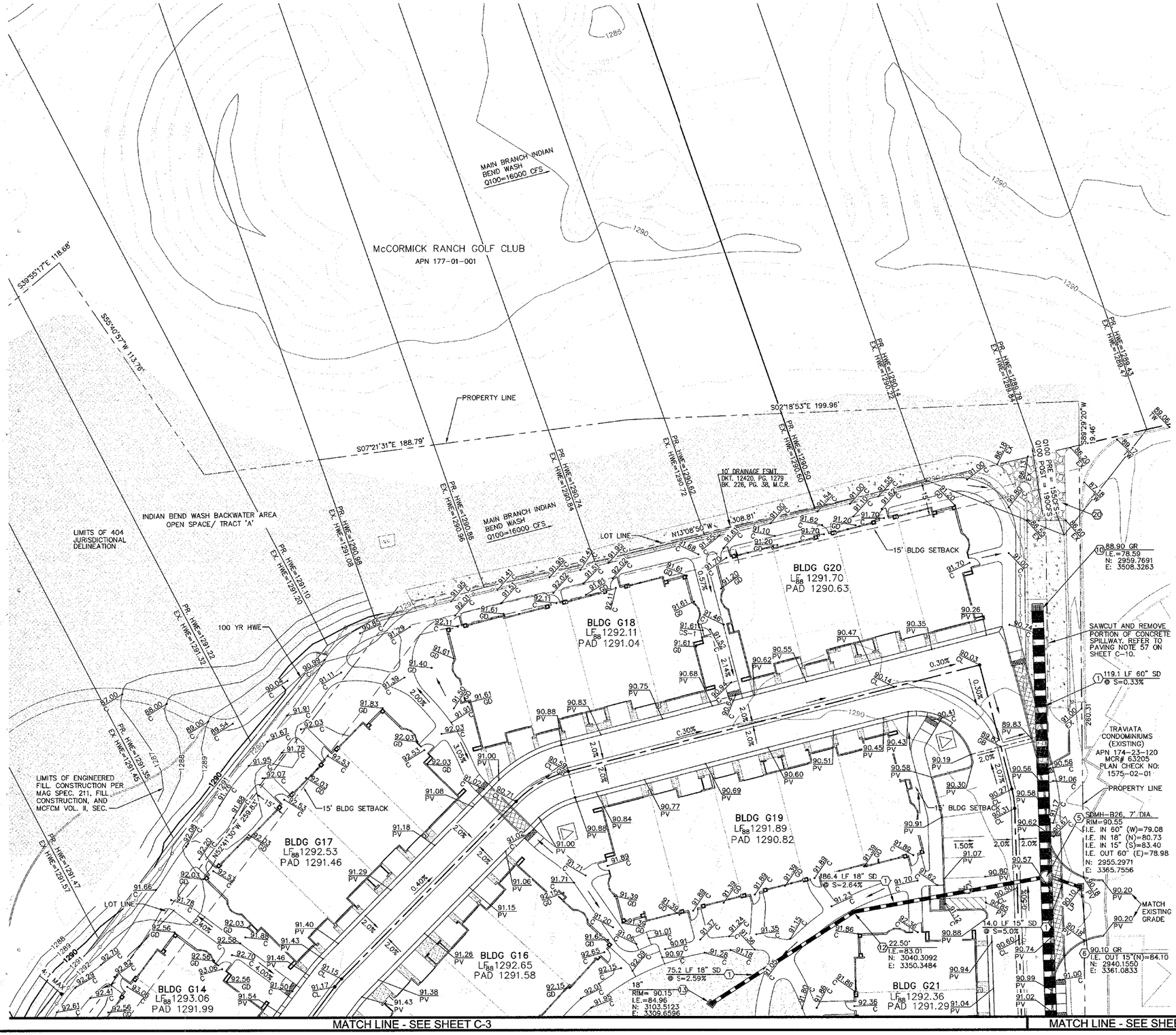
PROJECT NO.
091505008

DRAWING NAME
505008NT01

C-0.1

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1 1098-06-18

K:\EAV_Civil\091505008\CADD\Working Drawings\505008NT01.dwg Nov 27, 2007 andrew.finnson
NOTICE: ALL DESIGNS, DRAWINGS AND SPECIFICATIONS PREPARED BY KIMLEY-HORN AND ASSOCIATES, INC. ARE INSTRUMENTS OF SERVICE FOR USE SOLELY WITH RESPECT TO THIS PROJECT AND, UNLESS OTHERWISE PROVIDED, KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE DEEMED THE AUTHOR AND OWNER OF SAID INSTRUMENTS OF SERVICE. THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

(1) INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).

(5) INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.

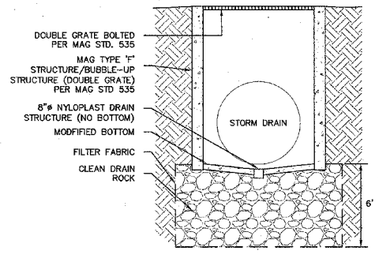
(6) INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.

(10) INSTALL BUBBLE-UP STRUCTURE PER DETAIL ON PAGE C-1.

(12) INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.

(13) INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)

(20) INSTALL 70.5 SY RIP-RAP, D50= 12".



BUBBLE-UP STRUCTURE DETAIL
NOT TO SCALE

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. II. SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR.

Kimley-Horn and Associates, Inc.
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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 06-12-07

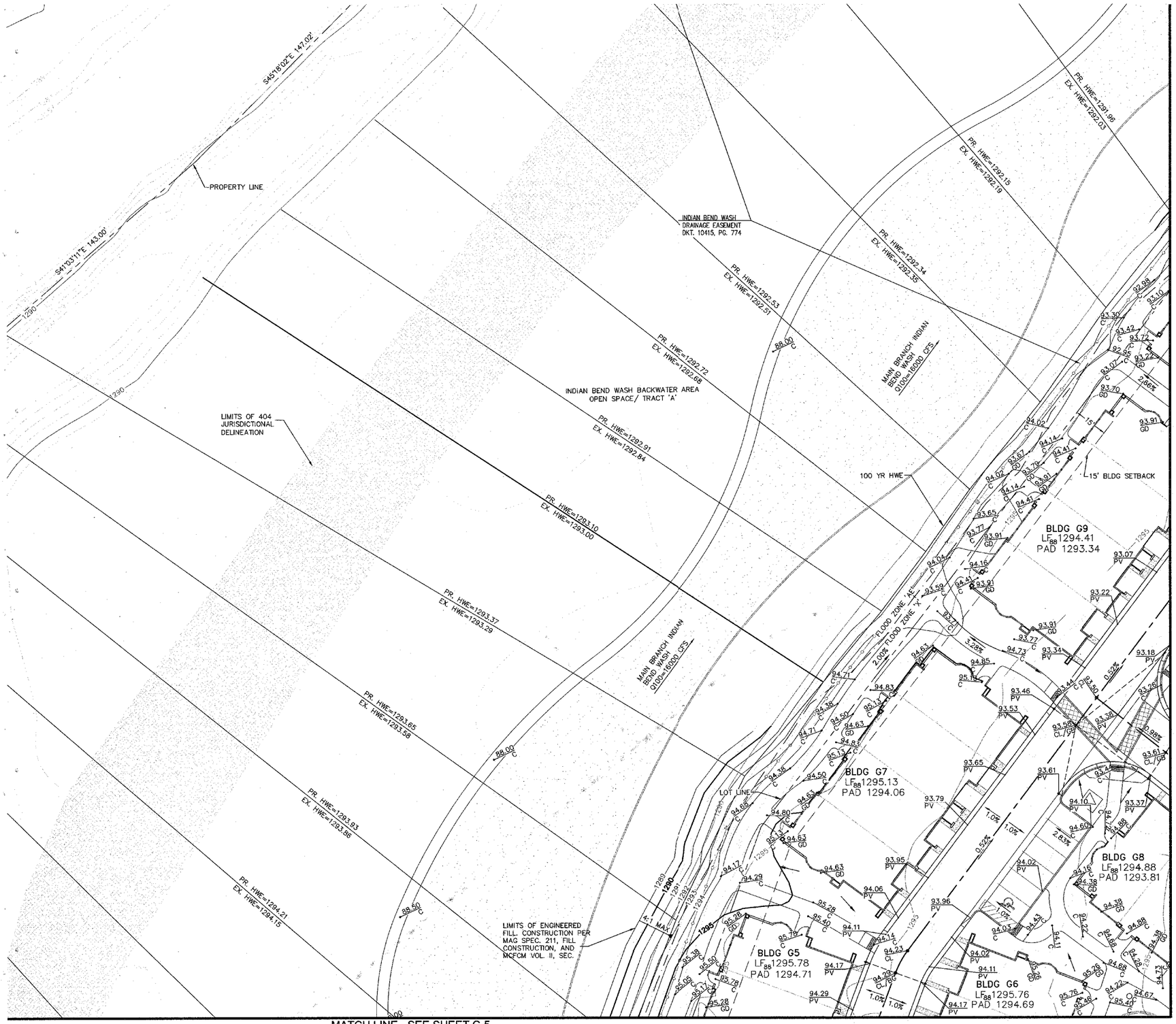
STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil) CERTIFICATE NO. 30886 MICHAEL L. DELMARTER
My Signature Expires 9-30-08 USA

PROJECT NO. 091505008
DRAWING NAME 505008GD01
C-1

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1

K:\C_Civil\091505008\CAD\Working Drawings\505008GD01.dwg Jun 29, 2007 andrew.firnson
XREF: 505008XB01 505008XB02 505008XB03 505008XB04 505008XB05
THESE PLANS ARE FOR USE IN THE CITY OF SCOTTSDALE ONLY AND SHALL NOT BE USED FOR ANY OTHER PROJECT. NEITHER THE PLANS NOR ANY PART OF THEIR DOCUMENT TAKE EFFECT WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHOM IT WAS PREPARED. REUSE OF ANY PORTION OF THESE PLANS AND DOCUMENTS SHALL BE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. FOR THE SPECIFIC PROJECT SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO KIMLEY-HORN AND ASSOCIATES, INC.



LEGEND

95.00	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 GD	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 PV	PROPOSED SPOT ELEVATION (CONCRETE)
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95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. 11. SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR.

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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 06-12-07

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil)
CERTIFICATE NO.
30886
MICHAEL L. DELMARTER
Expires 6/30/07

PROJECT NO.
091505008

DRAWING NAME
505008GD01

C-2

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1

K:\Civ\091505008\CADD\Working Drawings\505008GD01.dwg Jun 25, 2007 andrew.finnson
XREF: 505008XB01.dwg, 505008XB02.dwg, 505008XB03.dwg, 505008XB04.dwg, 505008XB05.dwg
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

MATCH LINE - SEE SHEET C-1

MATCH LINE - SEE SHEET C-2

MATCH LINE - SEE SHEET C-4

MATCH LINE - SEE SHEET C-6

BLDG G14
LF$_{88}$1293.06
PAD 1291.99

BLDG G16
LF$_{88}$1292.65
PAD 1291.58

BLDG G21
LF$_{88}$1292.36
PAD 1291.29

BLDG G11
LF$_{88}$1293.72
PAD 1292.65

BLDG G15
LF$_{88}$1293.95
PAD 1292.88

BLDG G13
LF$_{88}$1293.94
PAD 1292.87

BLDG G12
LF$_{88}$1293.92
PAD 1292.85

BLDG G10
LF$_{88}$1294.93
PAD 1293.86

BLDG G8
LF$_{88}$1294.88
PAD 1293.81

BLDG C4
LF$_{88}$1295.00
GF 1284.00
PAD 1283.33

LOT LINE

PR. HWE=1291.77
EX. HWE=1291.66

S59°41'30"E 427.67'

S37°20'16"W 583.38'

53.3 LF 36" SD @ S=1.70%

36"x10" WYE
I.E.=82.38
N: 3005.6880
E: 3093.9718

25.0 LF 10" SD @ S=18.09%

22.10 LF 10" SD @ S=18.09%

11.25'
I.E.=86.38
N: 2995.3975
E: 3074.4392

I.E.=90.90
N: 2979.5223
E: 3055.0996

SDMH-D1, 5' DIA.
RIM=93.08
I.E. IN 8" (SW)=86.32
I.E. IN 30" (NW)=85.19
I.E. OUT 36" (SE)=84.99
N: 3141.4685
E: 3022.4374

153.5 LF 36" SD @ S=1.70%

28.0 LF 8" SD @ S=16.71%

I.E.=91.00
N: 3123.6995
E: 3000.7908

30"x10" WYE
I.E.=85.38
N: 3178.7863
E: 2991.8044

48.3 LF 30" SD @ S=0.39%

18"
RIM=92.00
I.E.=88.26
N: 3238.7655
E: 3024.8847

63.6 LF 18" SD @ S=4.37%

25.4 LF 30" SD @ S=0.39%

71.2 LF 30" SD @ S=0.39%

30"x10" WYE
I.E.=85.76
N: 3253.4218
E: 2930.5386

53.9 LF 30" SD @ S=0.39%

30"x18" WYE
I.E.=85.48
N: 3198.3969
E: 2975.7067

29.4 LF 10" SD @ S=15.78%

I.E.=90.40
N: 3235.6528
E: 2908.8921

30"x8" WYE
I.E.=85.97
N: 3295.0891
E: 2896.3353

41.4 LF 30" SD @ S=0.39%

SDMH-D16, 4' DIA.
RIM=93.64
I.E. IN 30" (NW)=86.33
I.E. OUT 30" (SE)=86.13
N: 3327.0621
E: 2870.0898

29.4 LF 8" SD @ S=17.11%

I.E.=91.00
N: 3277.3202
E: 2874.6887

29.4 LF 10" SD @ S=17.07%

I.E.=90.40
N: 3161.0173
E: 2970.1578

24"
RIM=94.20
I.E.=86.76
N: 2980.6634
E: 2863.0635

30.3 LF 24" SD @ S=1.38%

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

(1) INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).

(2) STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.

(5) INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.

(6) INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.

(11) INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.

(12) INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.

(13) INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. 11. SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR.

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Phoenix, Arizona 85020 (602) 944-5500

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 06-12-07

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil)
CERTIFICATE NO.
30686
MICHAEL L. DELMARTER
06-30-08
STATE OF ARIZONA

PROJECT NO.
091505008

DRAWING NAME
505008GD01

C-3

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1

K:\S_Civil\091505008\CADD\Working Drawings\505008GD01.dwg Jun 25, 2007 andrew.finnson
THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

MATCH LINE - SEE SHEET C-1

MATCH LINE - SEE SHEET C-3

MATCH LINE - SEE SHEET C-7

S00°30'40"E 425.00'

PROPERTY LINE

N89°29'20"E 630.76'

N89°29'20"E 1240.14'

S89°29'20"W 776.00'

15' BLDG SETBACK

BLDG L1
LF88 1293.51
PAD 1292.44

BLDG L2
LF88 1294.01
PAD 1292.94

BLDG L3
LF88 1294.58
PAD 1293.51

BLDG L4
LF88 1295.28
PAD 1294.21

BLDG L5
LF88 1295.81
PAD 1294.74

BLDG C4
LF88 1295.00
GF 1284.00
PAD 1283.33

BLDG CH2
LF88 1295.00
PAD 1294.29

BLDG C5
LF88 1295.50
GF 1284.50
PAD 1283.83

TRAVIATA CONDOMINIUMS (EXISTING)
APN 174-23-120
MCR# 63205
PLAN CHECK NO: 1575-02-01

206.2 LF 60" SD @ S=0.33%

41.8 LF 42" SD @ S=1.90%

170.2 LF 42" SD @ S=1.90%

47.6 LF 12" SD @ S=1.00%

155.0 LF 42" SD @ S=0.33%

154.6 LF 36" SD @ S=0.33%

105.2 LF 24" SD @ S=0.28%

61.1 LF 8" SD @ S=7.32%

41.9 LF 36" SD @ S=1.22%

25.0 LF 8" SD @ S=21.97%

13.6 LF 8" SD @ S=21.97%

48 LF 8" SD @ S=1.00%

28.4 LF 12" SD @ S=3.42%

113.7 LF 24" SD @ S=0.30%

45.2 LF 24" SD @ S=0.29%

25.6 LF 24" SD @ S=0.29%

24.0 LF 24" SD @ S=0.29%

13.1 LF 8" SD @ S=12.00%

6.5 LF 6" SD @ S=82.46%

29.7 LF 24" SD @ S=0.29%

23.0 LF 24" SD @ S=0.29%

22.50' @ S=85.91%

23.5 LF 24" SD @ S=0.29%

13.1 LF 24" SD @ S=0.29%

39.9 LF 24" SD @ S=0.29%

SDMH-B25, 7' DIA.
RIM=92.02
I.E. IN 42" (SW)=80.51
I.E. IN 36" (NW)=80.76
I.E. OUT 60" (E)=79.76
N: 2948.8236
E: 3159.6205

SDMH-D20, 5' DIA.
RIM=93.00
I.E. IN 36" (NW)=81.47
I.E. OUT 36" (SE)=81.27
N: 2948.8236
E: 3159.6205

SDMH-B23, 5' DIA.
RIM=92.83
I.E. IN 42" (SW)=84.75
I.E. IN 12" (SE)=85.75
I.E. OUT 42" (NE)=84.55
N: 2738.2959
E: 3132.4296

SDMH-B22, 5' DIA.
RIM=93.68
I.E. IN 36" (W)=85.46
I.E. IN 24" (N)=85.46
I.E. OUT 42" (NE)=85.26
N: 2632.3799
E: 3019.2694

42"x8" WYE
I.E.=82.72
N: 2907.0278
E: 3154.3206

I.E.=88.21
N: 2910.2373
E: 3129.5820

I.E.=91.20
N: 2901.6018
E: 3119.0619

12" RIM=92.30
I.E.=86.22
N: 2702.5780
E: 3163.9288

8" RIM=94.10
I.E.=89.20
N: 2846.7173
E: 2992.6072

12" RIM=94.10
8" I.E.=88.72
12" I.E.=88.39
N: 2883.8184
E: 2962.1522

30" RIM=94.10
24" I.E.=86.42
12" I.E.=87.42
N: 2892.2658
E: 2935.6260

8" RIM=94.26
I.E.=87.59
N: 2806.8534
E: 2931.1744

8" RIM=94.26
I.E.=87.71
N: 2837.6360
E: 2905.8917

24" RIM=94.26
I.E.=86.29
N: 2863.6001
E: 2900.7047

90°
I.E.=86.21
N: 2847.3776
E: 2880.9420

I.E.=91.20
N: 2752.2274
E: 2955.8075

24"x6" WYE
I.E.=85.84
N: 2748.1068
E: 2950.7862

22.50°
I.E.=85.98
N: 2788.4089
E: 2929.3474

11.25°
I.E.=85.75
N: 2725.1226
E: 2969.6530

24"x8" WYE
I.E.=86.14
N: 2829.3219
E: 2895.7633

24"x8" WYE
I.E.=86.02
N: 2798.5309
E: 2921.0373

I.E.=91.70
N: 2692.5019
E: 2864.2622

36"x8" WYE
I.E.=87.23
N: 2631.3933
E: 2864.6521

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

1. INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).
2. STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.
4. INSTALL NYLOPLAST INLINE DRAIN. (SIZE AS NOTED ON PLANS)
5. INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.
11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.
13. INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. 11. SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR.

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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 06-12-07

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (CERTIFICATE NO.) 30886 MICHAEL L. DELMARTER (Date) 6-25-07

PROJECT NO.
091505008

DRAWING NAME
505008GD01

C-4

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1

THE DOCUMENTS, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC., SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

K:\C_Civil\091505008\CAD\Working Drawings\505008GD01.dwg, Jun 25, 2007 - andrew.finnson

MATCH LINE - SEE SHEET C-2

MATCH LINE - SEE SHEET C-6

MATCH LINE - SEE SHEET C-8

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

1. INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).
2. STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.
3. OUTLET PIPE AT RETAINING WALL (INVERT ELEVATION PER PLANS).
6. INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.
7. INSTALL SINGLE-WING CATCH BASIN PER MAG STD DET 533-1, TYPE D, (WING SIZE PER PLAN)
9. PROPOSED RETAINING WALL. REFER TO DETAIL 2 ON SHEET S-1 AND DETAILS ON SHEET S-2. REFER TO LANDSCAPE PLANS (PLAN CHECK NUMBER 1098-06-3) FOR HANDRAIL INFORMATION.
11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.
13. INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)
17. INSTALL 5'x5' GROUTED RIP-RAP PAD, D_{50} = 6".

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. 11. SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

CALL BLUE STAKE, INC. 602-263-1100 1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR.
1	REMOVAL OF WALL	ACF	11/27/07	PEL

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Phoenix, Arizona 85020 (602) 944-5500

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil) CERTIFICATE NO. 41965 JOSHUA G. SANDERS Date Signed 11/27/07 ARIZONA, U.S.A.

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 11-27-07

PROJECT NO. 091505008
DRAWING NAME 505008GD01
C-5

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1 1 1098-06-18

K:\PV_Civil\091505008\CADD\Working Drawings\505008GD01.dwg, Nov 27, 2007 andrew.finson

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MATCH LINE - SEE SHEET C-3

MATCH LINE - SEE SHEET C-5

MATCH LINE - SEE SHEET C-7

MATCH LINE - SEE SHEET C-8

MATCH LINE - SEE SHEET C-9

BLDG C2
LF$_{88}$1295.00
GF 1284.00
PAD 1283.33

BLDG CH1
LF$_{88}$1295.50
PAD 1294.79

BLDG C3
LF$_{88}$1295.50
GF 1284.50
PAD 1283.83

SDMH-D17, 5' DIA.
RIM=94.01'
I.E. IN 30" (NW)=86.95
I.E. IN 10" (SW)=87.52
I.E. OUT 30" (SE)=86.75
N: 3420.7172
E: 2814.2941

SDMH-D11, 4' DIA.
RIM=94.57
I.E. IN 30" (W)=87.65
I.E. IN 8" (SW)=88.37
I.E. OUT 30" (SE)=87.45
N: 3476.4864
E: 2705.5445

SDMH-C1, 4' DIA.
RIM=95.25
I.E. IN 18" (NW)=89.68
I.E. OUT 24"(NE)=89.48
N: 3453.3509
E: 2434.3374

LEGEND

95.00	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 AP	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 PV	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GR	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 GT	PROPOSED SPOT ELEVATION (GUTTER)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

1. INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).
2. STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.
4. INSTALL NYLOPLAST INLINE DRAIN. (SIZE AS NOTED ON PLANS)
5. INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.
6. INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.
7. INSTALL SINGLE-WING CATCH BASIN PER MAG STD DET 533-1, TYPE D. (WING SIZE PER PLAN).
8. CONSTRUCT CURB OPENING PER CURB OPENING DETAIL ON PAGE C-8.
11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BLND ANGLE PER PLANS.
13. INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211, FILL CONSTRUCTION, AND MCFCM VOL. 11, SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APP'D
2	PARKING AREA GRADING AND PAVING	DH	10/21/08	
1	REVISIONS.			

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1255 West Rosefina Road, Suite 250
Mesa, Arizona 85202 (480) 755-4444

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: BG
DATE: 04/9/10

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer
CERTIFICATE NO.
047853
HEATHER HIRSCHBERG
ARIZONA USA
Exp. Date: 03/31/11

PROJECT NO.
091505008
DRAWING NAME
5050080001

PLAN CHECK# 1098-06-2 D.R.# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 098-06-1

C-6

MATCH LINE - SEE SHEET C-4

MATCH LINE - SEE SHEET C-6

MATCH LINE - SEE SHEET C-9

BLDG C5
LF$_{88}$1295.50
GF 1284.50
PAD 1283.83

BLDG L10
LF$_{88}$1295.50
PAD 1294.43

BLDG L9
LF$_{88}$1295.60
PAD 1294.53

BLDG L8
LF$_{88}$1296.63
PAD 1295.56

BLDG L7
LF$_{88}$1296.78
PAD 1295.71

BLDG L6
LF$_{88}$1296.36
PAD 1295.29

TRAVIATA CONDOMINIUMS
(EXISTING)
APN 174-23-120
MCR# 63205
PLAN CHECK NO: 1575-02-01

EXISTING OFFICE BUILDING AREA
APN 174-23-005

PROPERTY LINE

15' BLDG SETBACK

5' BLDG SETBACK

N0°30'40"W 340.00'

N0°30'40"W 375.20'

S89°29'20"W 341.55'

N45°30'40"W 21.20'

S89°29'20"W 333.64'

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 G	PROPOSED SPOT ELEVATION (GUTTER)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

1. INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).
2. STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.
5. INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.
6. INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.
7. INSTALL SINGLE-WING CATCH BASIN PER MAG STD DET 533-1, TYPE D, (WING SIZE PER PLAN).
11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.
13. INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)
18. INSTALL DOUBLE-WING CATCH BASIN PER MAG STD DET 533 1, TYPE D, (WING SIZE PER PLAN).
20. INSTALL TYPE 'G' DOUBLE GRATE CATCH BASIN PER MAG STD DET 537.

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-08-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211, FILL CONSTRUCTION, AND MCFCM VOL. 11, SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

2 PARKING AREA GRADING AND PAVING — DH 10/21/08

NO.	REVISION	BY	DATE	APPR.

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1235 West Broadway Road, Suite 258
Mesa, Arizona 85202 (480) 759-4444

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: SG
DATE: 04/19/10

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer
CERTIFICATE NO.
047693
HEATHER HIRSCHBERG
Date Signed 09/30/10
ARIZONA, USA
Expires 09/30/11

PROJECT NO.
091505008
DRAWING NAME
505008GD01

C-7

PLAN CHECK# 1098-06-2 DR# 8-ZR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLAN# 1098-06-1

602-263-1100
1-800-STAKE-IT

MATCH LINE - SEE SHEET C-5

MATCH LINE - SEE SHEET C-6

MATCH LINE - SEE SHEET C-9

EXISTING BUILDING

BLDG C1
LF$_{88}$1295.50
GF 1284.50
PAD 1283.83

BLDG LW2
LF$_{88}$1296.24
PAD 1295.17

BLDG A
LF$_{88}$1297.50
PAD 1296.83

DRAINAGE EASEMENT

PR. HWE=1294.13

LIMITS OF ENGINEERED FILL, CONSTRUCTION PER MAG SPEC. 211, FILL CONSTRUCTION, AND MCFCM VOL. II, SEC. 8.3.3.

EXISTING DRAINAGE EASEMENT
DKT. 10415, PG. 774
DKT. 10422, PG. 620
TO BE ABANDONED

PROPERTY LINE

LIMITS OF EXCAVATION

LIMITS OF 404 JURISDICTIONAL DELINEATION

LIMITS OF CUT

MUMMY MOUNTAIN WASH PRE-#699 CFS Q100 POST-#699 CFS

FLOOD ZONE 'X'
FLOOD ZONE 'AE'

15' BLDG SETBACK

25' BLDG SETBACK

EXISTING HEADWALL
REFER TO S-1 AND S-2 FOR CONNECTION DETAIL

EXISTING BOX CULVERT
I.E.: 90.37

EXISTING BOX CULVERT
I.E.: 90.95

EXISTING 5' SIDEWALK

EXISTING 65' ROADWAY EASEMENT
DKT. 10843, PG. 570
ROAD MAP BK 13, PG. 57

75' ROW

PUBLIC ACCESS EASEMENT

SCOTTSDALE ROAD

720.00'

N00°30'40"W 2641.06'

N00°30'40"W 820.06'

S62°10'22"W 11.26'

N62°10'22"E 65.46'

S89°03'25"E 40.01'

480 LF

154 LF 18" SD
@ S=0.50%

119.1 LF 18" SD
@ S=0.33%

71.8 LF 18" SD
@ S=0.37%

57.8 LF 8" SD
@ S=1.45%

45.60 LF 12" SD
@ S=0.35%

15.0 LF 8" SD
@ S=2.53%

10.0 LF 8" SD
@ S=1.50%

79.4 LF 18" SD
@ S=0.37%

12.9 LF 8" SD
@ S=4.95%

12.9 LF 8" SD
@ S=2.87%

9.8 LF 18" SD
@ S=0.37%

SDMH-E1, 4' DIA.
RIM=94.65
I.E. IN 12" (NE)=90.93
I.E. OUT 18"(SE)=90.73
N: 3696.2729
E: 2294.9386

94.80 GR,
I.E. OUT 8" (NE)=90.80
N: 3620.9339
E: 2323.2565

94.80 GR
I.E. OUT 8" (NE)=90.80
N: 3558.7326
E: 2358.9998

I.E.=92.40
N: 3636.0227
E: 2397.2717

I.E.=91.32
N: 3753.8937
E: 2391.4458

I.E.=91.70
N: 3741.0172
E: 2399.1397

I.E.=92.25
N: 3631.0455
E: 2388.5983

I.E.=90.16
N: 3565.1497
E: 2370.1826

I.E.=90.43
N: 3627.3725
E: 2334.4766

I.E.=90.12
N: 3556.6756
E: 2375.0454

I.E.=89.65
N: 3471.4293
E: 2080.7538

18"x8" WYE

18"x10" WYE

12"x8" WYE

90°

TW=95.0
TF=89.5

TW=01.17
BW=95.17

TW=02.20
BW=96.20

TW=01.98
BW=95.98

TW=99.80
BW=96.80

TW=99.40
BW=96.40

TW=99.50
BW=96.50

TW=99.00
BW=95.00

GD=90.90

GD=90.20

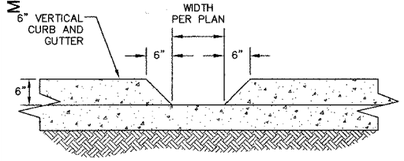
GD=90.40

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

1. INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).
2. STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.
3. OUTLET PIPE AT RETAINING WALL (INVERT ELEVATION PER PLANS).
5. INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.
6. INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.
9. PROPOSED RETAINING WALL. REFER TO DETAIL 2 ON SHEET S-1 AND DETAILS ON SHEET S-2. REFER TO LANDSCAPE PLANS (PLAN CHECK NUMBER 1098-06-3) FOR HANDRAIL INFORMATION.
11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.
16. CONSTRUCT CURB OPENING PER CURB OPENING DETAIL ON PAGE C-8 AND SPILLWAY PER MAG STD. DET. 550, WIDTH PER PLANS.
17. INSTALL 5'x5' GROUTED RIP-RAP PAD, D$_{50}$= 6".
19. INSTALL 1.5'x0.67' OPENING IN WALL. ELEVATION PER PLANS.



CURB OPENING DETAIL "A"
N.T.S.

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. 11. SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR
1	REMOVAL OF WALL, STORM REVISION	JAC	11/27/07	PEL

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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS GRADING & DRAINAGE CITY OF SCOTTSDALE

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 11-27-07

Registered Professional Engineer
41965
JOSHUA G. SANDERS
Date Signed: 11/27/07
ARIZONA, U.S.A.

PROJECT NO.
091505008

DRAWING NAME
505008GD01

C-8

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1 1098-06-18

K:\PHX_Civil\091505008\Grading\505008GD01.dwg Nov 27, 2007 andrew.finson
XREFs: ...\Survey\091505008_TOPO.dwg, 091505008_BOUNDARY.dwg, 091505008_ALTA.dwg
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

MATCH LINE - SEE SHEET C-6

MATCH LINE - SEE SHEET C-7

MATCH LINE - SEE SHEET C-8

BLDG LW1
LF$_{88}$1295.83
PAD 1294.76

BLDG L13
LF$_{88}$1295.27
PAD 1294.20

LF$_{88}$1297.50
PAD 1296.83

BLDG B
LF$_{88}$1297.50
PAD 1296.83

MATCH TO EXISTING CURB

PROPERTY LINE

15' BLDG SETBACK

S89°29'22"W 333.64'

S05°23'33"W 282.15'

N05°23'03"E 282.15'

EXISTING OFFICE BUILDING AREA APN 174-23-005

MATCH EXISTING

S78°10'54"W 76.48'

18" x12" WYE
I.E.=90.11
N: 3318.3143
E: 2097.0973

95.53 GR 3' WING
I.E.=90.28
N: 3262.4424
E: 2102.8340

56 LF 18" SD
@ S=0.30%

18 LF 12" SD
@ S=1.00%

95.65 GR
I.E.OUT 12" (SL)=90.54
N: 3093.6797
E: 2411.3613

BLDG SETBACK

N00°30'40"W 820.06'

PUBLIC ACCESS EASEMENT

EXISTING 65' ROADWAY EASEMENT
BK. 1084, PG. 570
ROAD MAP BK 13, PG. 57

1' VNAE

75' ROW

SCOTTSDALE ROAD

PROPERTY LINE

N00°30'40"W 2641.06'

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 G	PROPOSED SPOT ELEVATION (GUTTER)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

(6) INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.

(7) INSTALL SINGLE-WING CATCH BASIN PER MAG STD DET 533-1, TYPE B, (WING SIZE PER PLAN).

(11) INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.

(15) CONSTRUCT WEEPHOLES IN SCREEN WALL. REFER TO LANDSCAPE PLAN FOR MORE INFORMATION.

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. 11. SLC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO	REVISION	BY	DATE	APPR.
1	GRADING REVISIONS	AC	11/27/07	PL
2	PARKING AREA GRADING AND PAVING REVISIONS.	DH	10/21/05	

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1285 West Baseline Road, Suite 285
Mesa, Arizona 85202 (480) 756-4444

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: BG
DATE: 04/19/0

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer
CERTIFICATE NO.
047693
HEATHER HIRSCHBERG
ARIZONA USA
Exp. Date 09/31/08

PROJECT NO.
091505008
DRAWING NAME
505008GD01

C-9

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1st SUBMITTAL DATE 12-20-2005 NATIVE PLANE 1098-06-1

K:\PAV_Civil\091505008\CAD\Working Drawings\505008GD01.dwg Apr 06, 2010 - 1:07pm - heather.hirschberg
XREFS: x505008GD01_Base.dwg x505008GD01_Grid.dwg x505008GD01_Xsections.dwg x505008GD01_Xsections_Grid.dwg
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Kimley»Horn

Appendix B: Corps of Engineers – Jurisdictional Limits of Water Letter 11/3/2004

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3636 NORTH CENTRAL AVENUE, SUITE 900
PHOENIX, ARIZONA 85012-1939

REPLY TO
Office of the Chief
Regulatory Branch

November 3, 2004

Ms. Marcie Martin
Kimley-Horn and Associates, Inc.
7878 North 16th Street, Suite 300
Phoenix, Arizona 85020

File Number: 2004-01777-AP

Dear Ms. Martin:

Reference is made to your letter of August 27, 2004 in which a Clean Water Act Section 404 jurisdictional delineation was requested by the property owner (Mr. Jeff Siebert of Starpointe-Radisson) for their 43-acre parcel of land located east of Scottsdale Road and north of Indian Bend Road (Section 2, T2N, R4E), Scottsdale, Maricopa County, Arizona.

The enclosed aerial photograph delineates the waters of the United States consisting of Mummy Wash and an unnamed tributary wash that are regulated by Section 404 of the Clean Water Act. This approved jurisdictional determination will remain in effect for five years from the date of this letter unless an unusual flood event occurs. After this five-year period or after an unusual flood event alters stream conditions, the Corps of Engineers reserves the authority to retain the original jurisdictional limits or to establish new jurisdictional limits as conditions warrant.

Each water of the United States herein delineated is a water that is tributary to an interstate water. The Section 404 jurisdictional limit for a water of the United States is defined at 33 CFR Part 328. The jurisdictional limit for a non-tidal water of the United States is determined by the jurisdictional wetland boundary and/or the ordinary high water mark. The jurisdictional limit of a wetland is determined in accordance with the Corps of Engineers 1987 Wetlands Delineation Manual. Otherwise, presence of the indicators stated in the definition of ordinary high mark (33CFR 328.3(e)) are used to establish the jurisdictional limit of a water of the United States. The basis of this jurisdictional determination is shown on the enclosed checklist.

Any discharge of dredged or fill material within the designated jurisdictional area requires a Section 404 permit from the Corps of Engineers. The Corps of Engineers emphasizes avoidance of the delineated jurisdictional area. Please review this delineation and evaluate your proposed activity to ensure that avoidance of the jurisdictional area is given full consideration in your design. If all discharges of dredged or fill material occur outside the designated jurisdictional area, no Section 404 permit is required. If avoidance is not practicable, please reference File Number 2004-01777-AP when submitting your Section 404 permit application to the Corps of Engineers. Please be advised that your application needs to substantiate that avoidance of designated jurisdictional areas is not practicable and substantiate that impacts to waters of the United States have been minimized.

Furthermore, you are hereby advised that the Corps of Engineers has established an Administrative Appeal Process for jurisdictional determinations which is fully described at 33 CFR Part 331. The Administrative Appeal Process for jurisdictional determinations is diagrammed on the enclosed Appendix C. If you decide not to accept this approved jurisdictional determination and wish to provide new information please send the information to this office. If you do not supply additional information you may appeal this approved jurisdictional determination by completing the attached "Notification of Administrative Appeal Options and Process and Request for Appeal" form and submitting it directly to the Appeal Review Officer at the address provided on the form.

The receipt of your letter is appreciated. If you have questions, please contact Ann Palaruan at (602) 640-5385 x 227.

Sincerely,

Cindy Lester

Cindy Lester P.E.
Chief, Arizona Section
Regulatory Branch

Enclosure(s)

Copy Furnished:
(Without Enclosures)

Mr. Jeff Seibert
Starpointe-Radisson Properties
7025 North Scottsdale Road, Suite 310
Scottsdale, Arizona 85253

Basis of Jurisdictional Determination

Date of desk determination: November 3, 2004

Supporting documentation:

__X__ Applicant's proposed jurisdictional determination
_____ Wetland delineation following 1987 Corps Wetland Delineation Manual
__X__ Aerial photography interpretation
__X__ Ground photographs
_____ Topographic map interpretation
__X__ Review of historical records and/or aerial photography
__X__ Comparison of previously accepted delineations of the area
__X__ USGS map(s)
_____ Flow data (drainage reports, modeled flows, USGS gage data, or other sources)
_____ Floodplain maps
_____ Soil Maps
_____ Environmental Assessment/ Environmental Impact Statement
_____ National Wetland Inventory Maps
__X__ Staff knowledge of area
_____ Biological resource reports
_____ Other

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Starpointe-Radisson Properties, Inc.	File Number: 2004-01777-AP	Date: November 3, 2004

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I: The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the for m to the DISTRICT engineer. Your objections must be received by the DISTRICT engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the DISTRICT engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (a ddress on reverse). This form must be received by the DIVISION (not district) engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse) engineer. This form must be received by the DIVISION (not district) engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse) engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL OR PROFFERED PERMIT OR PERMIT DENIAL OR APPROVED JD TO DISTRICT ENGINEER FOR THE PURPOSE OF OBJECTING TO AN INITIAL PROFFERED PERMIT OR ANY

INFORMATION FOR APPEAL OF APPROVED JURISDICTIONAL DETERMINATION TO DISTRICT ENGINEER

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

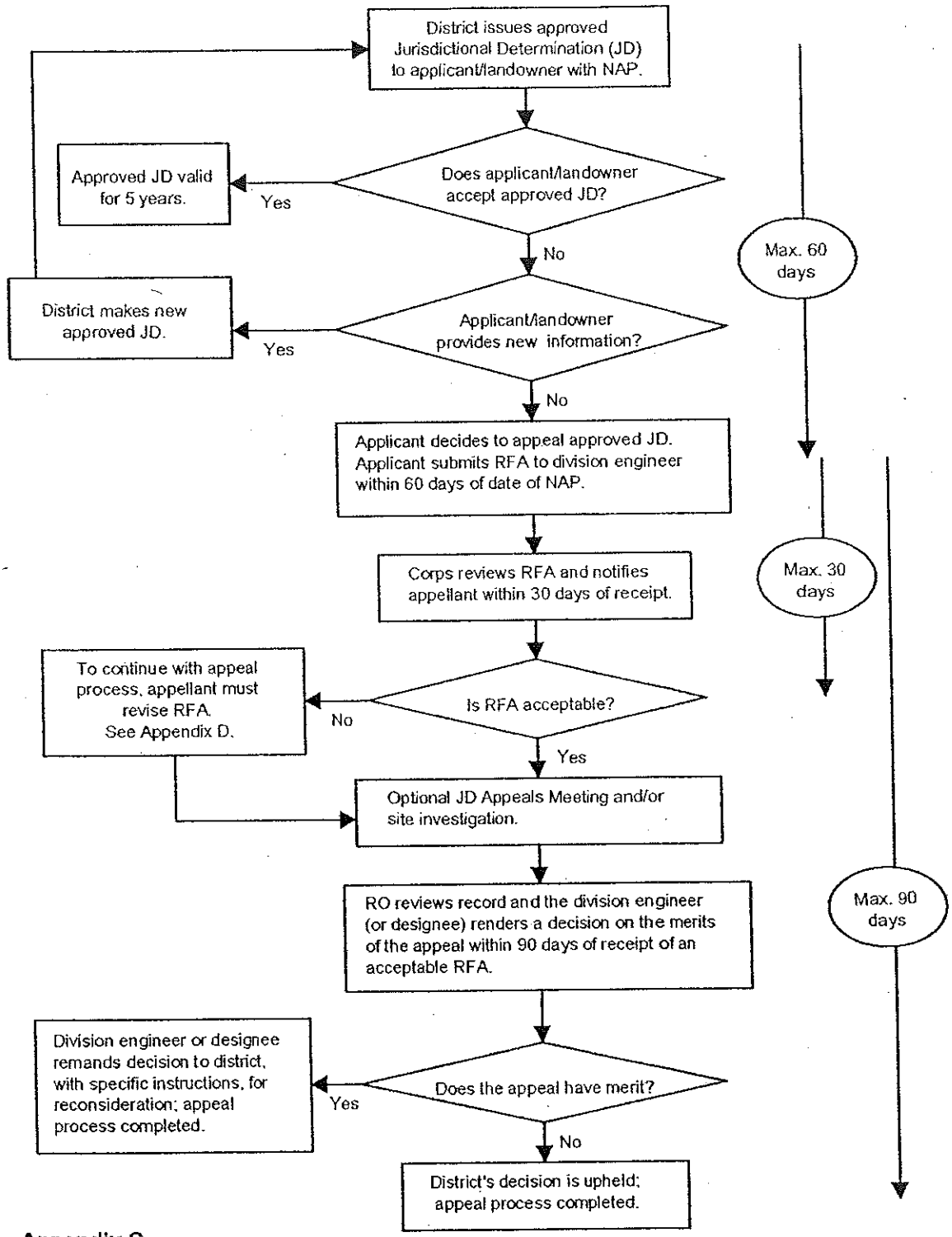
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: DISTRICT ENGINEER Los Angeles District, Corps of Engineers Attn: Chief, Regulatory Branch PO Box 532711 Los Angeles, CA 90053 (213-452-3425)	If you only have questions regarding the appeal process you may also contact: DIVISION ENGINEER Army Engineer Division, South Pacific, CESPD-CM-O Attn: Doug Pomeroy Administrative Appeal Review Officer 333 Market Street San Francisco, CA 94015 (415-977-8035)

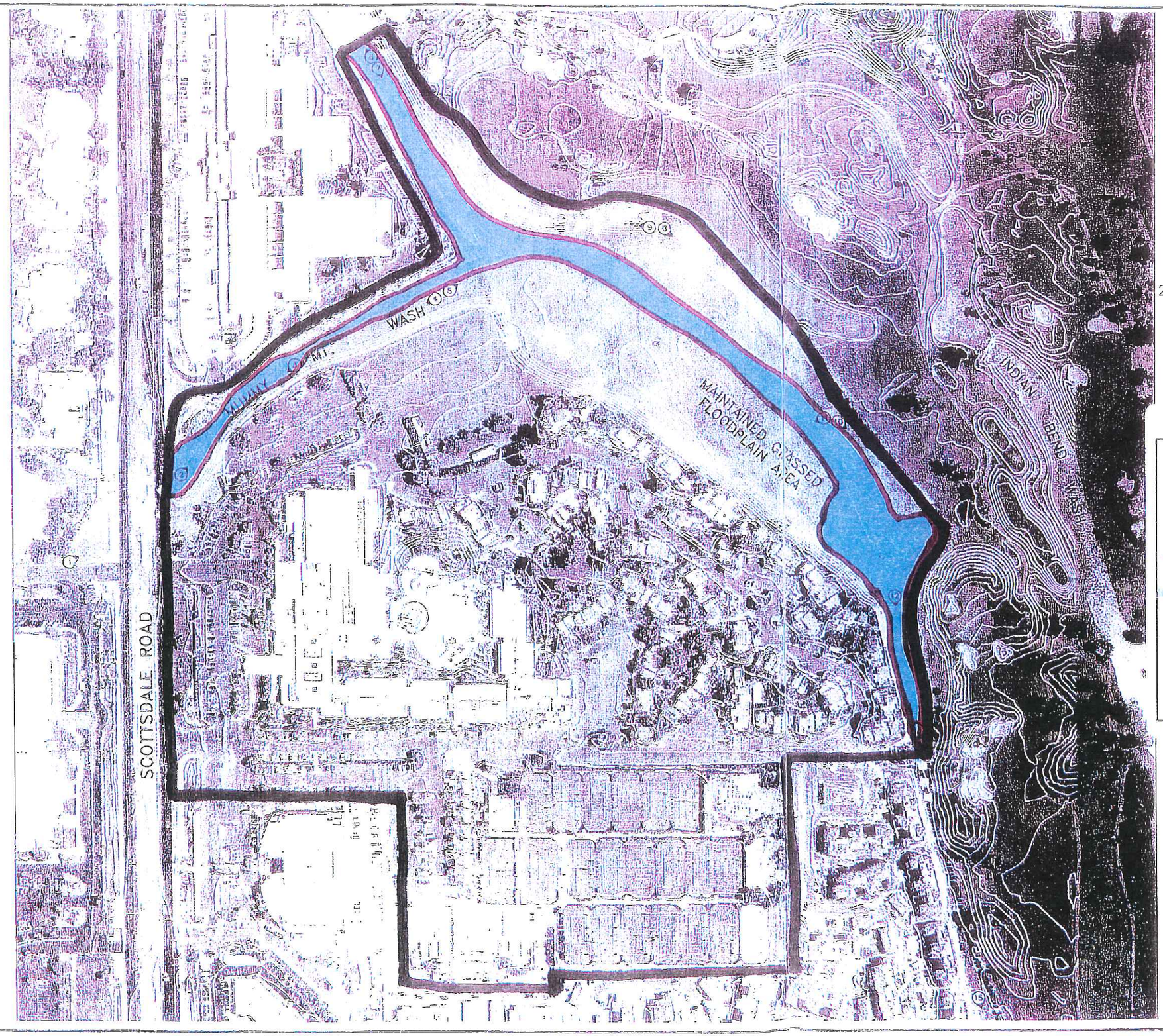
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C



N

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)

SECTION 404 JURISDICTIONAL DELINEATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. 2004-01777-AP

------Boundary of area surveyed for jurisdictional waters of the United States

------Ordinary High Water Mark

------Waters of the United States

------Wetlands (If legend is blank no wetlands occur with survey area.)

N Site Visit(Y/N) Date:

1"=200' Scale June 04 Date of Photograph

Ann Palaviccini Corps Project Manager

THIS PROJECT IS LOCATED IN THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST (GILA AND SALT RIVER BASE AND MERIDIAN) MARICOPA COUNTY, ARIZONA.

PHOTO DATE: JUNE 2004

Kimley-Horn and Associates, inc.
KIMLEY-HORN AND ASSOCIATES, INC.
Engineering, Planning, and Environmental Consultants
7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

NO. REVISION DATE

DATE: 7/04

STARPOINT

WASH SYSTEM
SCOTTSDALE, ARIZONA

PROJECT NO. 091505003

DRAWING NAME 915003JD

1 OF 1

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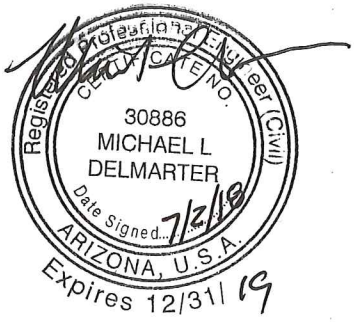
Appendix C: Final Drainage Report for Artesia, July 2018

FINAL DRAINAGE REPORT

Artesia

Prepared For:

ARTESIA DEVELOPMENT PARTNERS LLC
C/O Meritage Homes
8800 E. Raintree Drive, Suite 300
Scottsdale, AZ 85260



Kimley»Horn

191166007
July 2018
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ARTESIA

Final Drainage Report

LOCATED IN SCOTTSDALE, ARIZONA



JULY 2018 | VERSION 3

Prepared By:

Kimley»Horn

Kimley»Horn

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1. INTRODUCTION

1.1 PROJECT NAME, LOCATION, SIZE AND BRIEF DESCRIPTION

This report has been prepared supporting the redesign of the project formerly known as Starpointe-Artesia located east of Scottsdale Road and north of Indian Bend Road in the City of Scottsdale, Arizona. The site is positioned in the southwest quarter of Section 2, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian in Maricopa County, Arizona. This parcel is bordered to the north by Mummy Mountain Wash and to the south by existing condominiums. The site is further bound on the east by McCormick Ranch Golf Club and Indian Bend Wash. It is bound on the west by Scottsdale Road. See **Figure 1** and **Figure 2** for the location of the site.

The site was originally developed in the early 80's as a Radisson hotel and completely built out with a tennis complex and resort amenities. In 2005, the site was approved as 2-ZN-2005 for 480 residential units on 39+/- acres with an additional 5 acres of commercial property along the Scottsdale Road frontage. In 2008, the project was engineered, platted and the onsite circulation system, utilities and drainage infrastructure was constructed in full. The commercial portion of the site was developed and is currently occupied by the Blue 32 and Roka Akor restaurants along with other retail shops. The live/work units along the Hummingbird entry road were also constructed along with 64 luxury condo units and 23 golf townhomes in the northeast corner of the site. An underground parking garage was constructed in the center of the site under the planned 4 story luxury condominium units, however, the vertical portion of the units were not constructed. The remaining brownstone and golf condominiums along the eastern and southern boundary also were not constructed before the project was put on hold.

The project was rezoned in 2014 to add additional density/units while at the same time providing more open space than the original design. The additional units were added by providing additional floors/building height along with smaller units within the redeveloped portions of the site.

Meritage Homes is currently developing plans to construct the remainder of the project from where it was left by the original developer while at the same time refining the building products to match today's market conditions. While the site layout remains very similar to the 2008 plans, the project will be developed in 3 phases as follows:

Planning Area 1 – Consists of refining the central residential towers and constructing the vertical portion of the development over the existing underground garage structures. Existing roof drain and storm drain systems constructed with the original construction will continue to be utilized.

Planning Area 2 – Was rezoned in 2014 to allow for more density and development of a tower products. However, for this report, it is assumed that this area will remain as originally designed and constructed in 2008 since final product has not been determined for this area. All existing roof drains and storm drain systems will continue to be utilized as currently installed.

Planning Area 3 – Reconfigures the 10 original brownstone products into 9 multi family buildings. New area drain and roof drain connections will be constructed and tie into the existing storm drain system.

1.2 TYPE OF REPORT

This Final Drainage Report has been prepared to support the refinement of the Artesia development with regard to drainage and flood control.

1.3 PURPOSE AND OBJECTIVES

The purpose of this report is to demonstrate that stormwater runoff from the proposed development can be adequately handled by existing drainage infrastructure and does not adversely affect downstream properties. This report presents the methodologies, calculations and results that show that all drainage and retention design requirements for the development will meet the drainage standards and guidelines of the City of Scottsdale, Arizona. It is the intent of this development to utilize the same drainage methodologies as originally utilized for the Starpointe Artesia project and show that the increase in proposed open space area will maintain or reduce stormwater discharges from the site.

2. DESCRIPTION OF EXISTING DRAINAGE CONDITIONS AND CHARACTERISTICS

2.1 ON-SITE DRAINAGE CONDITIONS

The original Radisson Hotel development discharged the majority of stormwater runoff directly to Mummy Mountain Wash and Indian Bend Wash on the east side of the property without any treatment or detention. A small amount of stormwater was also discharged directly to Scottsdale Road from the properties lying adjacent to Scottsdale Road. Localized flows also discharged directly to Mummy Mountain Wash. Some stormwater from the southern portion of the site used to discharge to the properties directly to the south of the development as well. The 2007 redevelopment of the site handled stormwater very similar to historic conditions; however stormwater no longer discharges to Scottsdale Road or the southern properties and all stormwater runoff is directed to Mummy Mountain Wash and/or the Indian Bend Wash Backwater Area.

An onsite storm drain system was installed with the Starpointe Artesia infrastructure that collects all onsite flows and along with surface drainage, discharges to the Indian Bend Wash at the southeast corner of the site (CP2) without detention or treatment. (See **Figure 3**)

The results of the Final Drainage Report for Starpointe Artesia by Kimley-Horn and Associates dated July 2007 have been reviewed, accepted and hereby incorporated into this Final Drainage report. A copy of the As-built grading plans for the Starpointe Artesia project are included in **Figure 4**.

Exhibit 1 – Existing Conditions



2.2 OFF-SITE WATERSHED CONDITIONS

A Final Drainage Report was prepared for the 1996 Scottsdale Road Improvements by DMJM+Harris. This report determined that approximately 600 cfs was tributary to the Mummy Mountain Wash crossing of Scottsdale Road. The improvement plans for Scottsdale Road which included widening, storm drain and median improvements also designed catch basins inlets on both the east and west sides of Scottsdale Road in front of the subject property. This storm drain conveys roadway drainage to an existing box culvert at Mummy Mountain Wash. Two additional 10'x3' box culverts were installed under Scottsdale Road at the intersection of Mummy Mountain Wash to convey the aforementioned 600 cfs.

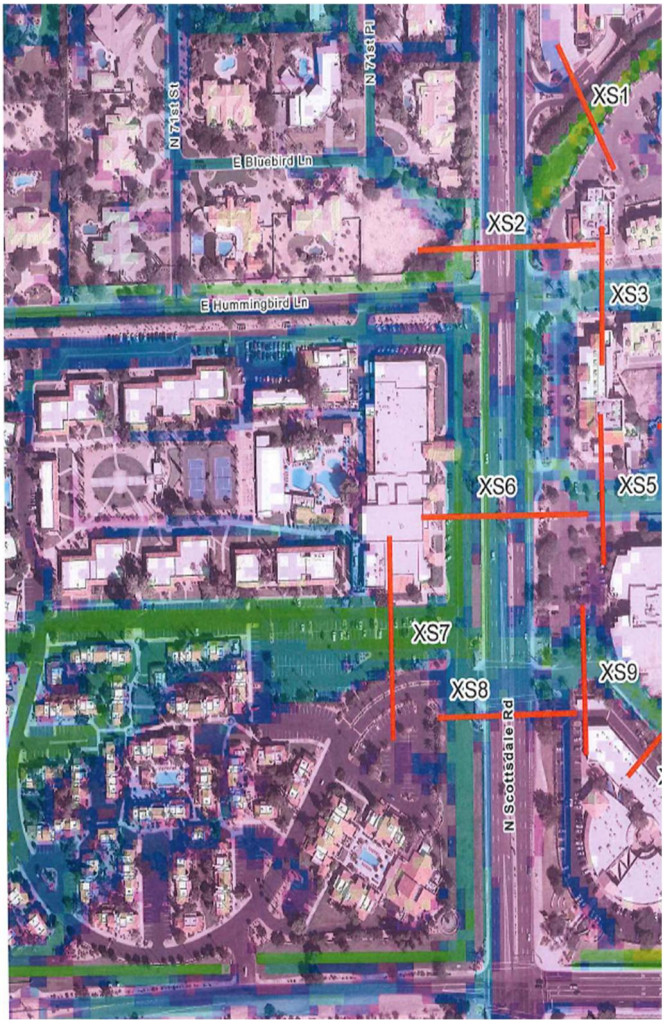
As part of the 2007 redevelopment, a portion of Mummy Mountain Wash channel was filled and LOMR-F was processed through the FEMA process. This portion of the site has already been built out per the 2007 plans and no additional improvements will be constructed adjacent to the Mummy Mountain Wash. as part of this project.

To the east of the site is the McCormick Ranch Golf Club which contains the Indian Bend Wash. The open space on the east side of the property is a backwater area for the Indian Bend Wash. The backwater area has an approximate 4:1 side slope which will be maintained in the proposed condition. A gunite wall with an approximate slope of 2:1 lines a portion of the backwater area for approximately 250 feet.

The Flood Control District of Maricopa County (FCDMC) is currently in the process of analyzing the Lower Indian Bend Wash (LIBW) watershed. The model is not finalized but preliminary results have been released to the City of Scottsdale to be used as a planning tool to assess potential drainage impacts. Modeling is performed in FLO-2D to provide hydrographs, drainage patterns and flow characteristics for the 100 year, 24 hour storm event based on 20' square grids. According to the flood control district, 2 foot contour data obtained from 2007 photography has been utilized as the mapping source.

While FLO-2D is not intended for detailed onsite drainage design, it is intended to show potential impacts from offsite. FLO-2D results are to be further refined with detailed hydraulics. Preliminary mapping results were shared by the City of Scottsdale (City) that indicated possible capacity issues in Scottsdale Road that may impact the subject property.

Exhibit 2 – FCDMC Flo-2D Modeling (Draft)



Since this analysis has not been finalized or published, a public information request was submitted to the Flood Control District to obtain more information regarding these potential offsite impacts. The following

cross section information and the above exhibit were provided by the FCDMC and shows the draft results of the preliminary model at the indicated locations

XS1 - 112 CFS in Mummy Mountain Wash (compare to 600 cfs recognized by FEMA)
XS2 - 35 CFS Scottsdale Road just south of Mummy Mountain Wash
XS3 - 57 CFS impacts Artesia Southern Driveway
XS5 - 59 CFS impacts Artesia Northern Driveway
XS6 - 198 CFS Scottsdale Road just south of southern Artesia Driveway
XS7 - 272 CFS Flow through Scottsdale Plaza Resort
XS8 - 42 CFS Scottsdale Road south of Traviata
XS9 - 79 CFS impacts entrance to Traviata and adjacent commercial parcel

Kimley-Horn performed a field visit w/ City of Scottsdale Drainage officials in July 2017 to observe existing drainage patterns and has obtained field survey to further evaluate the preliminary results.

Observations

- Offsite flows reaching the west side of the Scottsdale Plaza Resort are only allowed to enter the resort property through weep holes in the perimeter fence and through larger openings near Indian Bend Road.

- Upon reaching the resort property, flows are conveyed via an interceptor channel to the Indian Bend Road channel alignment and/or Hummingbird Road alignment.

- The 272 cfs FLO-2D results at XS7 appears to be impossible to achieve given upstream as-built conditions. This flow path should only be conveying localized flows generated on the resort itself.

- The Indian Bend Road channel will deliver offsite flows to the intersection of Indian Bend and Scottsdale Road. The channel widens at the intersection and provides attenuation upstream of Scottsdale Road.

- While some flow is captured in a 24” culvert under Scottsdale Road, the majority of the flow will be conveyed northerly across the Resort frontage to the Mummy Mountain Wash inlet at Hummingbird and Scottsdale Road.

Survey/Analysis

- Cross Sections were obtained along the western edge of the resort property, along Indian Bend Road and along Scottsdale Road frontage.

- The capacity of the channel along the western edge of the Scottsdale Plaza Resort is 317 cfs and all therefore flows reaching this channel can be conveyed to the Indian Bend Road channel.

- The capacity of the Indian Bend Road north channel is 404 cfs and all therefore all flows reaching this channel can be conveyed to the Scottsdale Road.

- The capacity of the western side of Scottsdale Road south of the Artesia Entrances (cross sections 3, 4 and 5) varies between 400 and 790 cfs.

- The capacity of the western side of Scottsdale Road opposite the Artesia Southern entrance (cross sections 6 and 7) varies between 470 and 800 cfs.

- The capacity of the western side of Scottsdale Road opposite the Artesia Northern entrance (cross section 8) is over 1000 cfs and is the location where the depressed section of Hummingbird Lane allow runoff to enter the Mummy Mountain Wash Channel.

Conclusions

While it is our belief that the FCDMC FLO-2D flow paths are inaccurate, the volume of flow reaching Scottsdale Road is approximately 282 +42 cfs = 344 cfs (combine XS6 and XS8). The surveyed cross sections show that there are no locations along Scottsdale Road where the capacity of the western side of Scottsdale Road is less than 400 cfs. Therefore 100 yr flows in Scottsdale Road will be contained and conveyed in Scottsdale Road and its western frontage to the depressed section of Mummy Mountain Wash located on the east side of Scottsdale Road at Hummingbird and will not impact the Artesia property. See **Appendix A** for Cross Section information hydraulic calculations.

2.3 FLOOD HAZARD ZONES ON THE PROPERTY

Portions of the site are located within both shaded and un-shaded areas of zone “X” on FEMA FIRM map number 04013C1770 L, dated October 16, 2013. Un-shaded zone “X” areas are defined as “areas outside the limits of 500-year floodplain;” and shaded zone “X” areas are defined as “areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with Drainage Basins less than 1 square mile; and areas protected by levees from 100-year flood”. The Mummy Mountain Wash is located in flood zone “AE”, defined as the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. (See **Figure 8**) The FEMA 100 year high water elevations at 50 foot intervals are shown on the grading and drainage plans.

3. PROPOSED DRAINAGE PLAN

3.1 GENERAL DESCRIPTION

The proposed redevelopment will for the most part utilize existing drainage patterns and infrastructure installed with the Starpointe Artesia project. Ground level sidewalks and landscape areas are designed to sheet flow to the surrounding streets. In areas where sheet flow is not possible, stormwater is directed to surface level catch basins and drain into the proposed stormwater collection system. The existing stormwater collection system is sized to provide adequate capacity to collect runoff from both the residential and commercial portions of the site. Street capacity is designed for the 100-year event. In areas where the street cannot convey the 100-year event catch basins are utilized. Seven additional combination curb inlets will be installed as a part of the system. Ponding at all of these inlets will be contained within the curbs in the 10-year event per the DS&PM (See **Appendix F**). In PA-3 the street is designed with a one-way cross slope varying from 2%-5%. Refer to **Appendix B** and **Appendix C** for existing and proposed conditions StormCAD Modeling results. Profiles of the storm drain system depicting the Hydraulic Grade Line are included in **Appendix D**.

As described above, the stormwater collection system consists of inlets in the roads and courtyards, and pipes conveying stormwater into the Mummy Mountain and Indian Bend Washes. A bubble-up structure has been previously installed to discharge the major storm network to the Indian Bend Wash. The bubble-up structure included an 8 inch drain in the floor of the structure to allow the structure to drain and allow nuisance flows to percolate. (See **Figure 4** and **Figure 6**). It was determined that in order to maintain HGL's lower than on site inlets that the outlet elevation for the bubble-up structure needed to be at a lower elevation, therefore the 60" storm drain line is to be extended towards Indian Bend Wash. In addition to the existing bubble-up structure, a Dual Vortex Separator will be installed downstream to treat the first flush volume generated from the project before onsite flows are released into Indian Bend Wash. Refer to Section 3.4 for further discussion regarding first flush treatment. Once stormwater is treated by the Dual Vortex Separator, stormwater will bubble up via a third structure and the entire system will be drained via a new drywell installed in Indian Bend Wash. Stormwater runoff in excess of the first flush volume, or the capacity of the Dual Vortex Separator, will rise up and out of the bubble-up structures and discharge into the Indian Bend Wash.

Stormwater will continue to discharge from the site in 3 general locations. Existing Concentration Point 1 is located at the east end of Mummy Mountain Wash which is split up into points 1a, 1b, and 1c for clarity in this report. Ultimately points 1a, 1b, and 1c all discharge to Concentration Point 1 at the east end of Mummy Mountain Wash and are unaffected by the proposed project. Concentration Point 2 is located at the ultimate site outfall at the southeast corner of the site. The majority of the site discharges at Concentration Point 2 into Indian Bend Wash. The existing concrete spillway has adequate capacity to handle the proposed street flows. Analysis has been conducted on the top and bottom of the channel to determine the flow capacities of each section. (See Figure 6, Figure 5, and **Appendix E** for outlet channel flow capacities). The third location is from the perimeter fire access road and open space areas located immediately adjacent to Indian Bend Wash. These areas are localized flows and will sheet flow into the adjacent Indian Bend Wash at periodic low points.

The following table displays the contributing areas for the three proposed concentration points.

Concentration Point	Area (acres) per 2007 plan	Area (acres) per 2017 plan
1	0.1	0.1
2	1.3	0
3	1.9	3.2
4	29.0	29.0
5	0	0
6	0	0

The above Drainage Basins have been further subdivided into Sub-Basins. These sub-basins are displayed in **Figure 6**.

3.2 FUTURE CONDITIONS

The 100 year discharge for the site will not exceed the existing discharge and will therefore not add any significant demands to existing storm systems. Refer to Table 3.1 for 100 year pre vs. post runoff comparison.

Lowest floor elevations for all buildings have been set at least 12 inches above the adjacent 100-year post developed high water surface elevation. These lowest floor elevations will provide reasonable protection from the 100-year flood. Lowest Floor elevations for the proposed building modifications and 100-year water surface elevations are shown on **Figure 7**.

3.3 STORM WATER STORAGE REQUIREMENTS

The site was previously granted a Stormwater Storage Waiver with the 2007 project and all in lieu commitments have been satisfied which included a payment of approximately $1.172M. At that time, storage requirements and in lieu commitments were determined based on Maricopa County Flood Control District and City of Scottsdale guidelines based on the runoff volume generated by disturbed areas during the 100-year, 2 hour rainfall event.

When comparing the new land use for the Artesia project to the original Radisson site, the proposed runoff coefficient for the site is slightly increased. The new runoff coefficient for the site has increased by 0.0265 which results in an additional 8,626 cf of stormwater storage volume required in order to maintain pre vs post runoff. The project is designed to convey all stormwater runoff to the adjacent Indian Bend Wash without negatively impacting any downstream properties.

A request for stormwater storage waiver has been submitted separately per the instructions of the Stormwater Plan Review Manager, Richard Anderson, PE, and a copy of which is provided in **Appendix H** for reference. The waiver includes a report under City of Scottsdale Plan Check Number 5048-17-4 and includes exhibits and figures to support the waiver that are not included in this report.

3.4 FIRST FLUSH TREATMENT

First Flush treatment is provided by an Old Castle Precast Dual-Vortex Separator prior to discharge to McCormick Ranch Golf course. (See **Appendix G** for the Old Castle Precast Dual-Vortex Separator cut sheet).

The first flush flow rates are determined based on the City of Phoenix Storm Water Policies and Standards section 6.8.3 with modifications per Hasan Mushtaq and Keith Kesti using the following equation.

Equation 1: Standard Formula for First Flush Flow Rate

$$Q_{FF}=C*I*A$$

Where:

Q_{FF} = Minimum first flush discharge in cfs
C = Runoff coefficient (set to 1.00 for first flush condition)
A = tributary drainage area in acres

I = NOAA 14 100-year 2-hour intensity multiplied by depth ratio (first flush depth divided by 100-year 2-hour depth)

This method for calculating first flush flow has been proposed as a revision to the City of Phoenix Storm Water Policies and Standards and effectively reduces flow.

The first flush flow rate was calculated for Concentration Point 4. The sizing of the Old Castle Precast Dual-Vortex Separator is based on the total flow and the first flush flow as shown in Table 3.1. A major portion of the site drains through surface flow and discharges to McCormick Ranch Golf course without entering the storm drain system. The original bubble up structure which will remain serves to capture the initial 2.2 cfs of the overland flows and delivers them to the dual vortex separator. Table 3.1 below summarizes the first flush flows at Concentration Point 4 and the size of the Old Castle Precast Dual-Vortex Separator.

Table 3.1: First Flush Flows to Indian Bend Wash

Flow Type	Drainage Area	First Flush Flow	Total Flow	Storm Water Quality Unit Size
	Acres	**cfs**	**cfs**	
Pipe	20.3	5.1	88.7	
Surface	8.7	2.2	44.7	
TOTAL	**29.0**	**7.3**	**133.4**	**DVS-96**

3.5 PRE AND POST RUNOFF CHARACTERISTICS

The proposed drainage improvements are designed so that the overall 100-year discharge exiting the site does not exceed the historic pre-development discharge. No on-site runoff will be directed towards Scottsdale Road, therefore the development will not create any additional impacts on the Scottsdale Road drainage system. In 2006, for the purpose of determining a runoff coefficient for the Rational Method it was calculated that under existing and proposed conditions the on-site area consisted of approximately 24% landscaping (C=0.31) and 76% impervious area (C=0.95). This resulted in an overall weighted “C” value of Cw=0.80. For the overall disturbed area of the site including the park to the northeast which does not contribute to the storm drain system or the street flow on-site, separate coefficients were used for turf landscape area (C=0.30), landscape area (C=0.45) and paved area (C=0.95). This overall weighted coefficient was not used for runoff calculations but can be found in the stormwater waiver under the separate plan number. (Refer to **Figure 9**, **Figure 10**, and **Figure 11** for Weighted “C” Calculation Exhibits). Runoff Coefficients were obtained from the City of Scottsdale DS&PM Figure 4-5 using Hydrologic Soil Group “B” and Figure 4-1.5. Hydrologic Soil Group “B” was chosen per Table 3.1 in the Drainage Design Manual for Maricopa County. Refer to **Figure 12** and **Figure 13**.

The pre and post-development peak flows for the 100, 10, and 2 year storm events have been summarized in the following charts. See **Appendix B** and **Appendix C** for more information.

Table 3.2: 100 year Pre vs. Post Runoff

Concentration Point	Historic 100-Year Discharge	2017 100-Year Discharge	Difference
	cfs	**cfs**	**Cfs**
1	2	0	-2
2	15	0	-15
3	25	17	-8
4	129	142	+13
5	11	0	-11
6	6	0	-6
TOTAL	**188**	**159**	**-29**

Table 3.3: 10 year Pre vs. Post Runoff

Concentration Point	Existing 10-Year Discharge	2017 10-Year Discharge	Difference
	cfs	**cfs**	**cfs**
1	1	0	-1
2	8	0	-8
3	14	11	-2
4	62	87	+26
5	6	0	-6
6	3	0	-3
TOTAL	**92**	**98**	**+6**

Table 3.4: 2 year Pre vs. Post Runoff

Concentration Point	Existing 2-Year Discharge	2017 2-Year Discharge	Difference
	cfs	**cfs**	**cfs**
1	1	0	-1
2	4	0	-4
3	8	6	-2
4	35	51	+16
5	4	0	-4
6	2	0	-2
TOTAL	**54**	**57**	**+3**

3.6 PROPOSED DRAINAGE STRUCTURES

The proposed project will continue to utilize the existing storm drains, catch basins and inlets installed with the 2007 system. New roof drain connections will be made to the existing system where required to serve the proposed residential units. Entrances to the 2 underground parking garage entrances will be flood proofed to be above the adjacent 100 year BFE in the Indian Bend Wash Backwater area. All proposed drainage structures are designed in accordance to and comply with the City of Scottsdale Design Manual.

3.7 PROJECT PHASING

The project will be developed in Phases with a portion of the site already constructed. Planning Areas 1 and 3 (PA-1 and PA-3) will be constructed at approximately the same time, while Planning Area 2 adjacent to Indian Bend Wash will be developed after PA-1 and PA-3 construction is completed. All the drainage infrastructure for the site will be constructed in a single phase. A separate drainage report will be prepared for PA-2 if it is developed different than currently permitted.

3.8 ADEQ AZPDES REQUIREMENTS

Prior to construction an executed Notice of Intent (NOI) shall be submitted to Arizona Department of Environmental Quality (ADEQ) in conformance with the Arizona Pollution Discharge Elimination System Permit (AZPDES) permit. An approved NOI Certification from ADEQ with an AZCON number will be provided to the City during the Improvement Plans submittal. The NOI and associated storm water management best management practices will remain active on the site until construction is complete and a Notice of Termination is filed with ADEQ in conformance with AZPDES permit.

4. SPECIAL CONDITIONS

4.1 SPECIAL CONDITIONS

A Clean Water Act Section 404 Jurisdictional Delineation was approved by the Army Corps of Engineers on November 3, 2004 showing that the only jurisdictional wash on the property was within the Mummy Mountain Wash channel. No impacts to this wash are proposed with this project therefore this project is not subject to a 404 permit. (See **Appendix I**)

5. DATA ANALYSIS METHODS

5.1 HYDROLOGIC PROCEDURES AND ASSUMPTIONS

Peak flows for both the pre and post-development conditions for all drainage areas have been calculated using the Rational Method. Peak runoff flows were calculated for the 2, 10 and 100-year events as required by the City of Scottsdale for the stormwater runoff analysis. Times of concentration and rainfall intensities were estimated using the City of Scottsdale Design Standards and Policies Manual. A minimum time of concentration of 5 minutes was used. Runoff coefficients were determined using Figure 4-5 of the Design Standards & Policies Manual, using Hydrologic Soil Type “B”. Hydrologic Soil Group “B” was chosen per Table 3.1 in the Drainage Design Manual for Maricopa County. Refer to **Figure 12** for Soil Classification Map. (See **Appendix B** and **Appendix C**).

5.2 HYDRAULIC PROCEDURES, PARAMETER SELECTION AND ASSUMPTIONS

Hydraulic analysis has been conducted for the proposed storm drain systems. StormCAD was used to carry out this analysis. A Manning's roughness coefficient of 0.012 was used for all HDPE pipes. Refer to **Appendix D** for more information.

6. CONCLUSIONS

6.1 OVERALL PROJECT

- There are no impacts to the 100 year water surface elevation in Indian Bend Wash.
- Existing storm drain infrastructure installed with 2007 improvements will continue to be utilized to serve the site. Where necessary, storm drain and inlets will be relocated to accommodate revised building footprints.
- A downstream waiver of retention and associated in-lieu fees were previously paid in 2007. The proposed site modifications for PA-1 and PA-3 increases the imperviousness of the site slightly and is therefore handled with the stormwater waiver found in Appendix H.
- First Flush treatment will be provided at the site outfall location prior to discharge to Indian Bend Wash via a dual vortex interceptor device. The onsite storm drain system will be drained via a drywell constructed adjacent to site outfall location.
- Lowest floor elevations for all buildings have been set at least 12 inches above the adjacent 100-year post developed high water surface elevation. These lowest floor elevations will provide reasonable protection from the 100-year flood. Lowest Floor elevations and 100 year water surface elevations are shown on the grading and drainage plans.
- There are no offsite flows impacting the project. Scottsdale Road and adjacent overbank areas can convey up to 282 cfs to the existing Mummy Mountain Wash channel.

6.2 PROJECT PHASING

The redevelopment of this site is expected to be completed in three phases as described in Section 1.1 above.

7. WARNING AND DISCLAIMER OF LIABILITY

The Warning and Disclaimer of Liability is attached as **Figure 13**.

8. REFERENCES

City of Scottsdale, Arizona. Design Standards and Policies Manual, 2006.

City of Scottsdale, Arizona. Chapter 37 Floodplain and Stormwater Regulation.

Final Drainage Report for Scottsdale Road Improvements, DMJM+Harris, 1996

Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) Maricopa County, Arizona and Incorporated Areas Panel # 04013C 1695 H.

Final Drainage Report for Mummy Mountain Wash Channel Design, Kimley-Horn & Associates, Inc., May 2006.

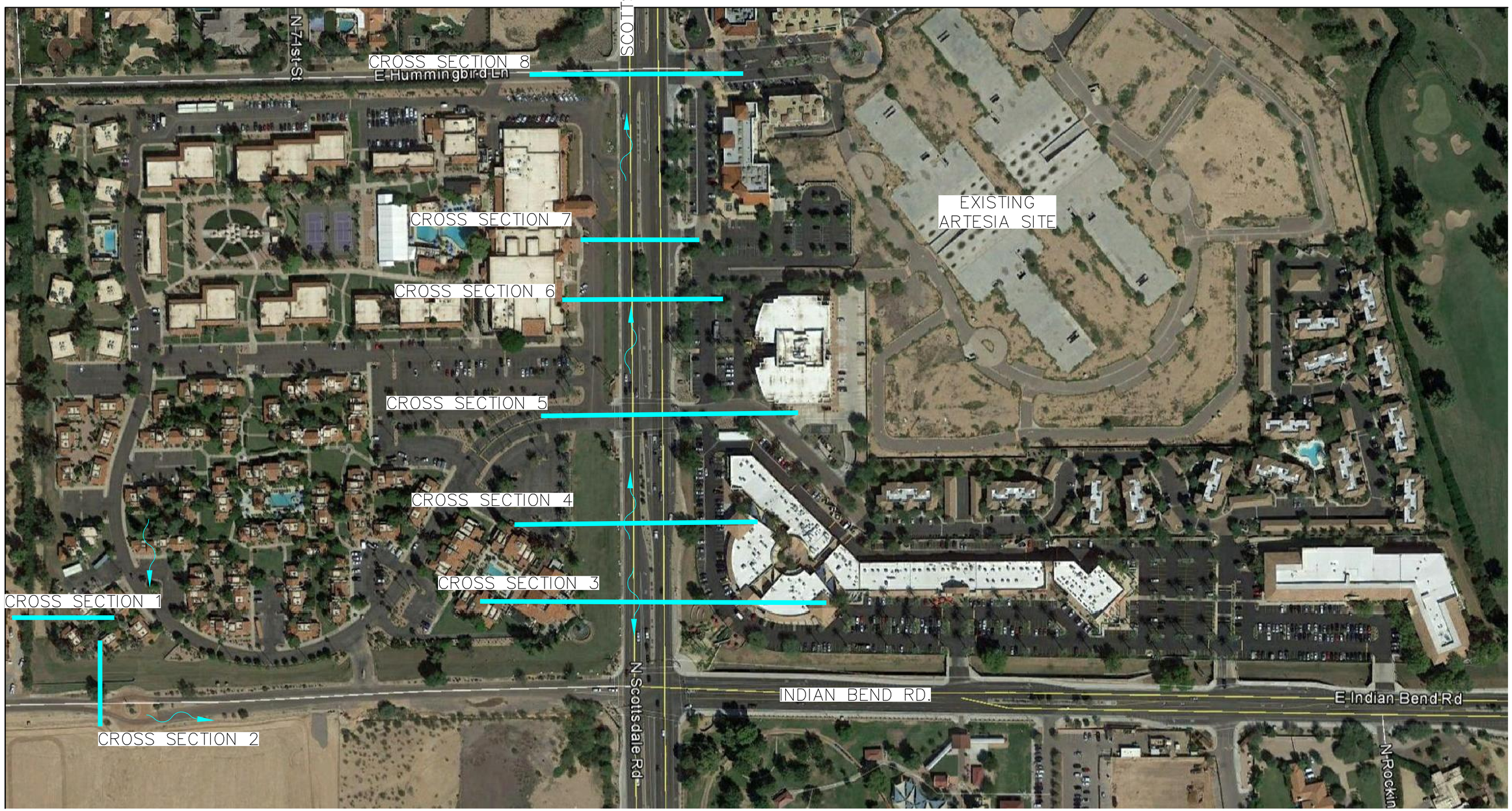
Technical Release 55 Urban Hydrology for Small Watersheds. Natural Resources Conservation Service – United States Department of Agriculture. June 1986.

Drainage Design Manual for Maricopa County, 2003.

Rational for Windows version 1.0.

APPENDIX

Appendix A: Scottsdale Road Calculations



SCOTTSDALE ROAD SECTIONS

Kimley»Horn

K:\PHX_Civil\191166007 - Artesia\CADD\Exhibits\Scottsdale Road Sections Exhibit.dwg Aug 01, 2017 tobin.kopp

Cross Section for CS 1 NS

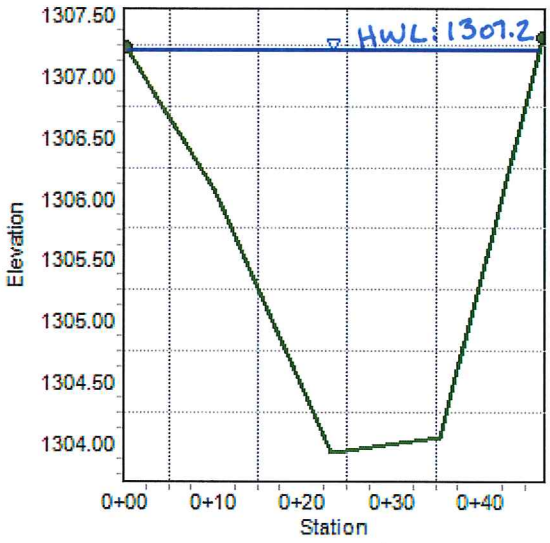
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00200	ft/ft
Normal Depth	3.28	ft
Discharge	317.07	ft³/s

Cross Section Image



Cross Section for CS 2 EW

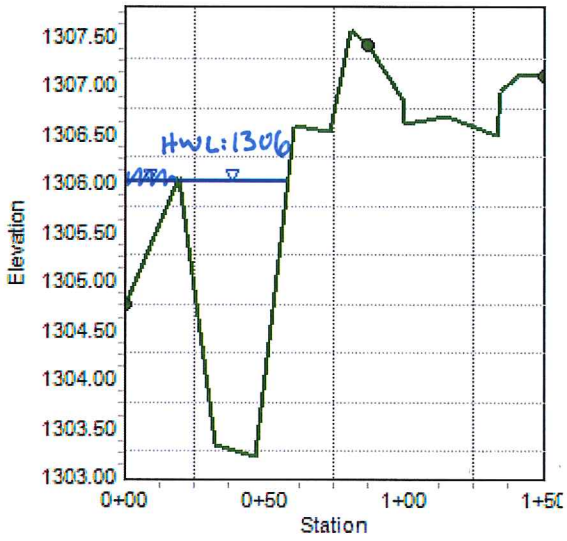
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00600	ft/ft
Normal Depth	2.79	ft
Discharge	404.87	ft³/s

Cross Section Image



Cross Section for CS 3 NS Overall

Project Description

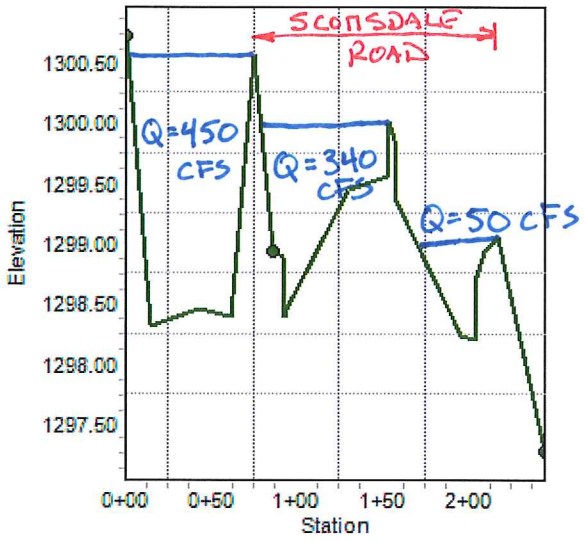
Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00200	ft/ft
Normal Depth	~~1297.28~~	~~ft~~
Discharge	~~1042.82~~	~~ft³/s~~

SEE BREAKOUTS

Cross Section Image



Cross Section for CS 3 NS Channel

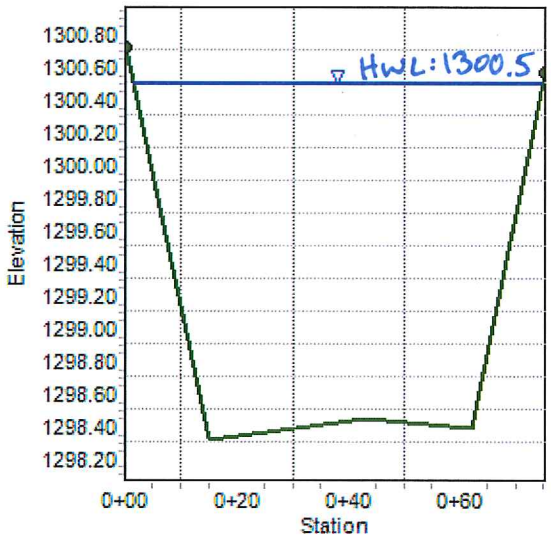
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00250	ft/ft
Normal Depth	2.18	ft
Discharge	452.71	ft³/s

Cross Section Image



Cross Section for CS 3 NS Road 1

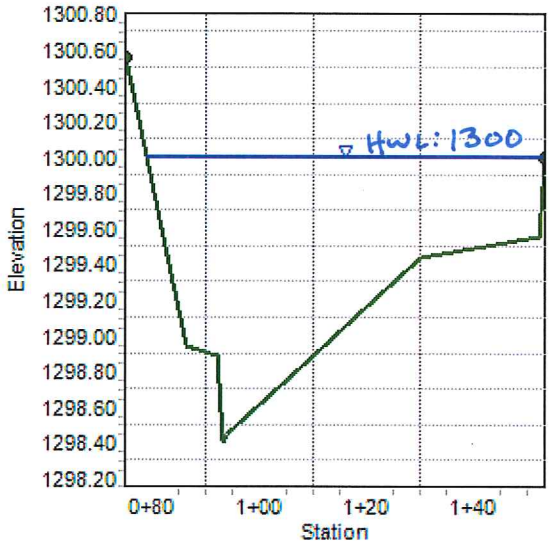
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	1.60	ft
Discharge	344.74	ft³/s

Cross Section Image



Cross Section for CS 3 NS Road 2

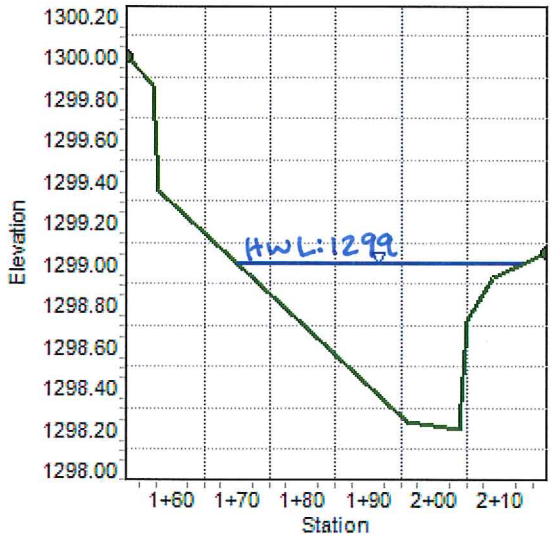
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00200	ft/ft
Normal Depth	0.81	ft
Discharge	49.45	ft³/s

Cross Section Image



Cross Section for CS 4 NS Overall

Project Description

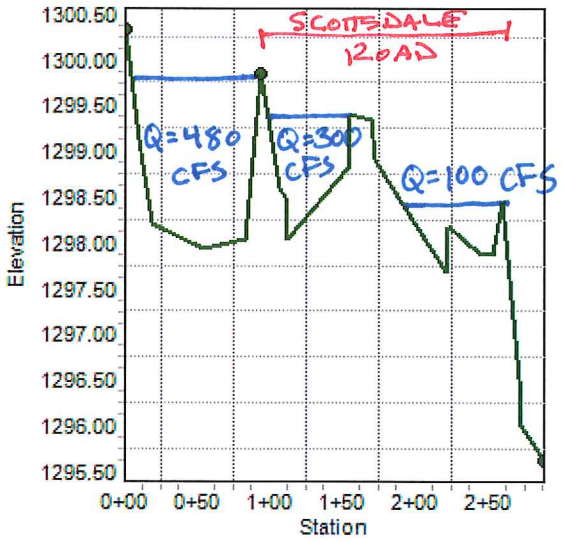
Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	~~1295.63~~	~~ft~~
Discharge	~~138.45~~	~~ft³/s~~

SEE BREAKOUTS

Cross Section Image



Cross Section for CS 4 NS Channel

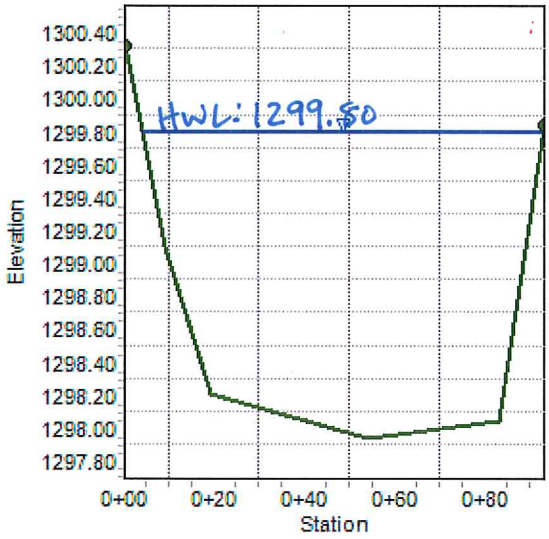
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	1.86	ft
Discharge	481.38	ft³/s

Cross Section Image



Cross Section for CS 4 NS Road 1

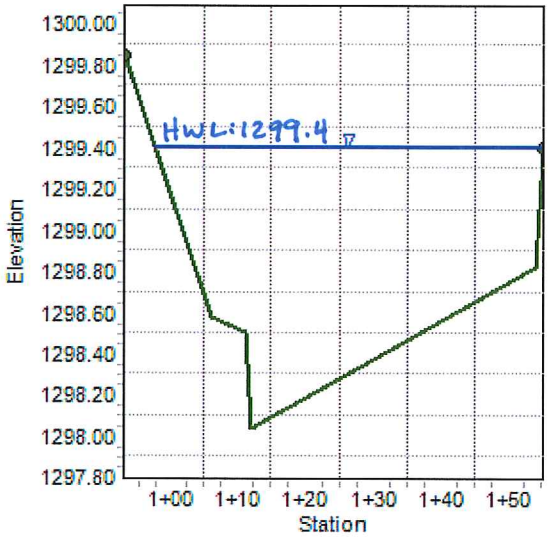
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	1.36	ft
Discharge	307.54	ft³/s

Cross Section Image



Cross Section for CS 4 NS Road 2

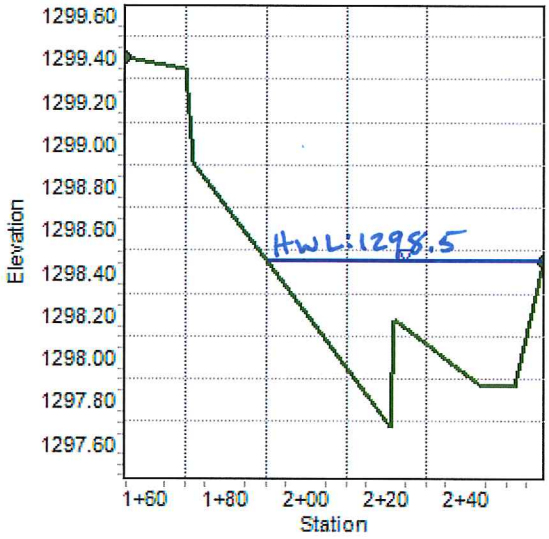
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	0.77	ft
Discharge	103.13	ft³/s

Cross Section Image



Cross Section for CS 5 NS Overall

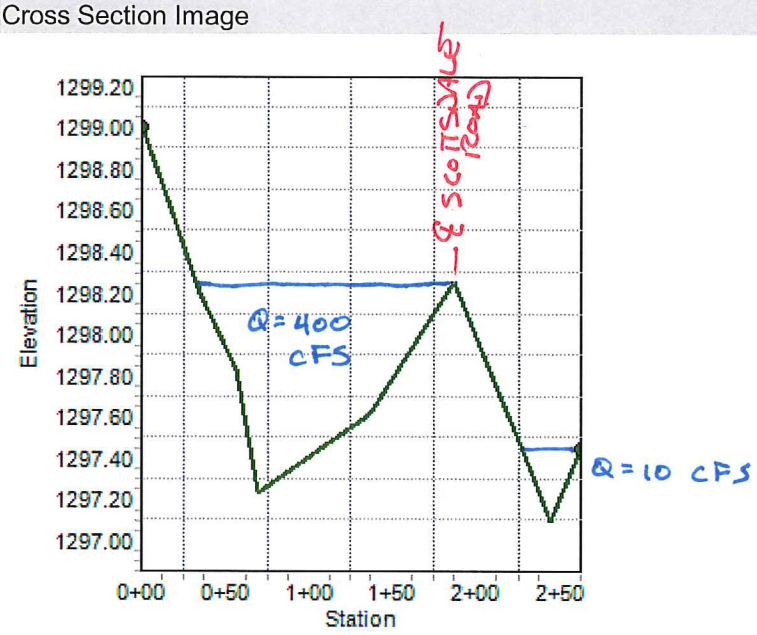
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	1297.10	ft
Discharge	2037.66	ft³/s

Cross Section Image



Cross Section for CS 5 NS Road 1

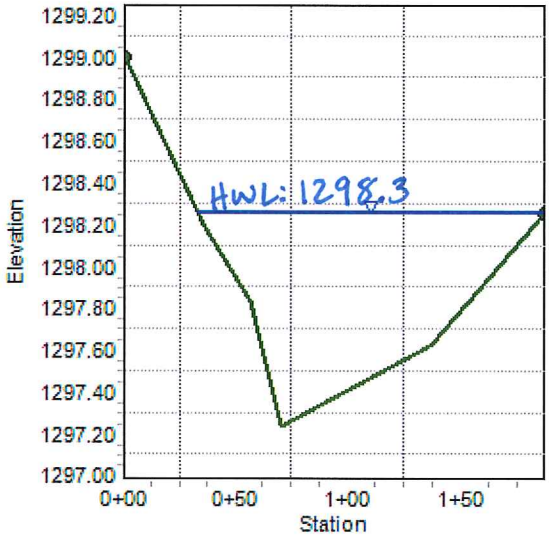
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	1.02	ft
Discharge	394.65	ft³/s

Cross Section Image



Cross Section for CS 5 NS Road 2

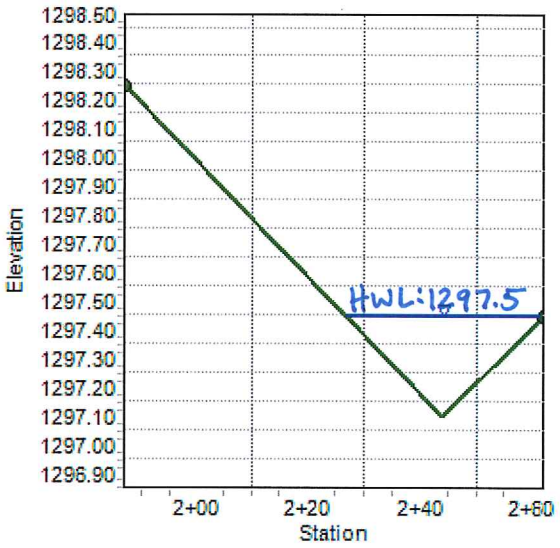
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	0.35	ft
Discharge	12.79	ft³/s

Cross Section Image



Cross Section for CS 6 NS Overall

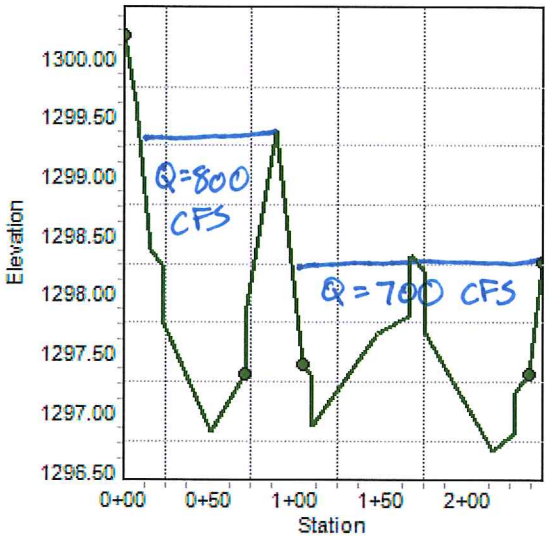
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300 ft/ft	
Normal Depth	-1296.67 ft	SEE BRANCHES
Discharge	622.62 ft³/s	

Cross Section Image



Cross Section for CS 6 NS West Side

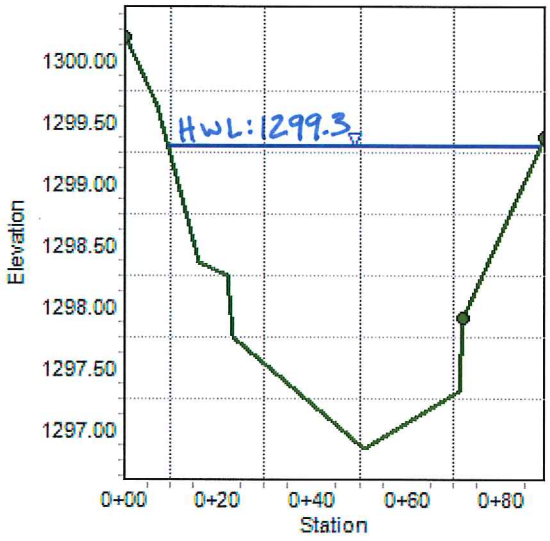
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	2.46	ft
Discharge	786.45	ft³/s

Cross Section Image



Cross Section for CS 6 NS East Side

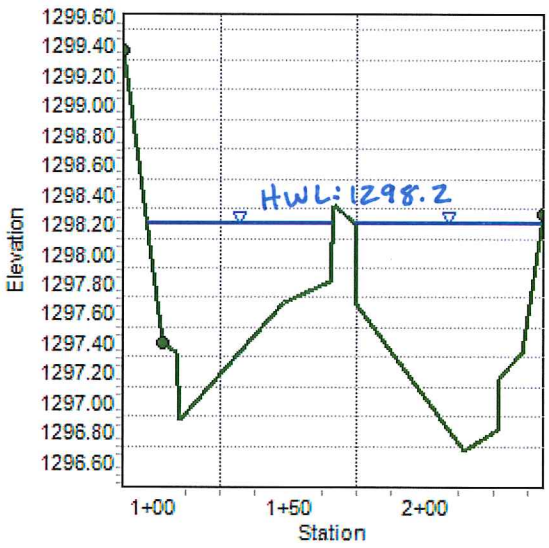
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	1.53	ft
Discharge	679.84	ft³/s

Cross Section Image



Cross Section for CS 7 NS Overall

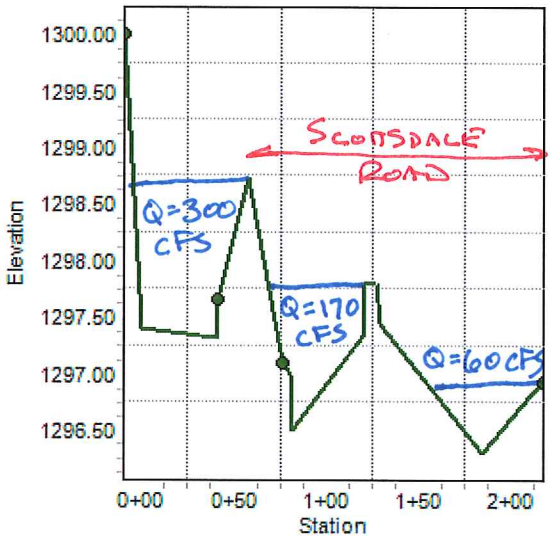
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	~~1296.30~~	~~ft~~
Discharge	~~98.76~~	~~ft³/s~~

Cross Section Image



Cross Section for CS 7 NS Hotel Side

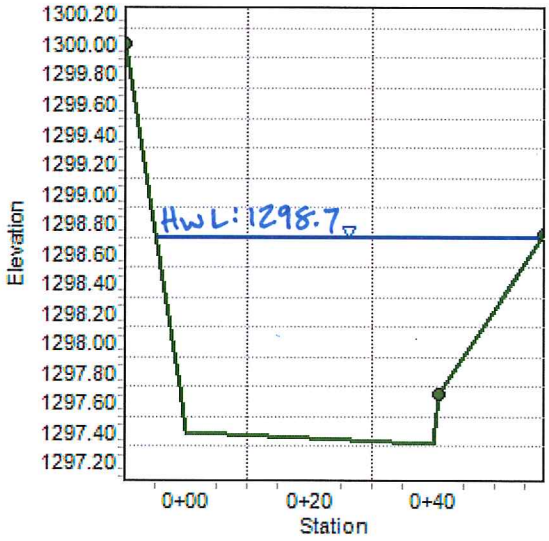
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	1.38	ft
Discharge	304.52	ft³/s

Cross Section Image



Cross Section for CS 7 NS West Side

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	1.30	ft
Discharge	169.17	ft³/s

Cross Section Image



Cross Section for CS 7 NS East Side

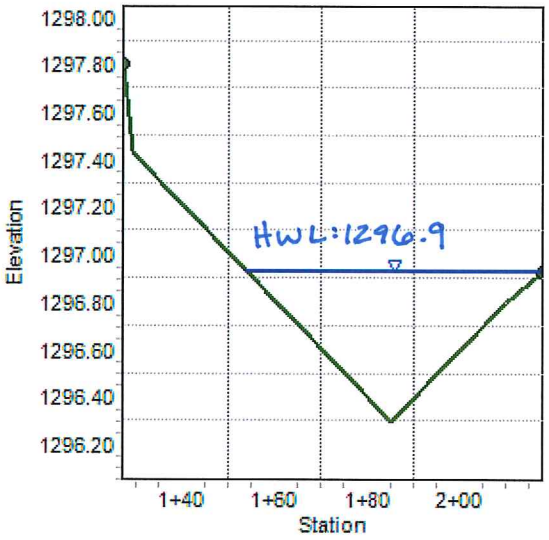
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00300	ft/ft
Normal Depth	0.63	ft
Discharge	61.56	ft³/s

Cross Section Image



Cross Section for CS 8 NS

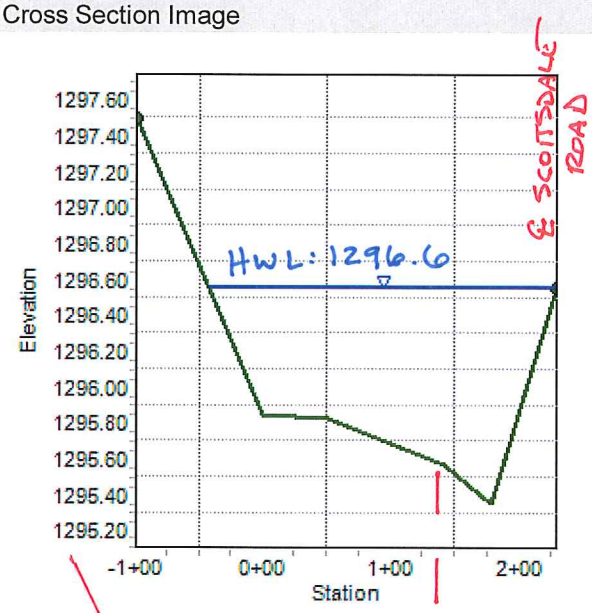
Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00260	ft/ft
Normal Depth	1.20	ft
Discharge	1023.72	ft³/s

Cross Section Image



Kimley»Horn

Appendix B: Pre-Development Hydrologic Calculations

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Artesia
Proj #:	191166007
Date:	5/17/17
Prep by:	CGF
Check by:	MLD

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
2-Yr	0.24	0.37	0.46	0.62	0.77
10-Yr	0.40	0.60	0.75	1.01	1.25
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
2-Yr	2.92	2.22	1.84	1.24	0.77
10-Yr	4.75	3.62	2.99	2.02	1.25

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.20
100-Yr	1.25	1.25

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. = 1

Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	2-Yr Minim allowed Tc,tot = 0.0				Q 2-Yr (cfs)	10-Yr Minim allowed Tc,tot = 5.0				Q 10-Yr (cfs)
													Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)		Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	
CP1		0.19	0.800	68	95	94	0.0147	A	-0.00625	0.04	0.0445	0	0.80	2.7	2.7	2.92	0.4	0.80	2.2	5.0	4.75	0.7
CP2		2.29	0.800	392	97	96	0.0026	A	-0.00625	0.04	0.0378	0	0.80	11.3	11.3	2.14	3.9	0.80	8.9	8.9	4.07	7.5
CP3		3.44	0.800	230	96	93	0.0130	A	-0.00625	0.04	0.0366	0	0.80	4.6	4.6	2.92	8.0	0.80	3.8	5.0	4.75	13.1
CP4		23.70	0.800	1362	97	90	0.0051	A	-0.00625	0.04	0.0314	0	0.80	16.5	16.5	1.80	34.1	0.80	13.2	13.2	3.24	61.4
CP5		1.50	0.800	126	94	91	0.0238	A	-0.00625	0.04	0.0389	0	0.80	2.9	2.9	2.92	3.5	0.80	2.4	5.0	4.75	5.7
CP6		0.71	0.800	114	95	93.5	0.0132	A	-0.00625	0.04	0.0409	0	0.80	3.4	3.4	2.92	1.7	0.80	2.8	5.0	4.75	2.7

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Artesia
Proj #:	191166007.00
Date:	5/17/17
Prep by:	CGF
Check by:	MLD

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
50-Yr	0.56	0.85	1.05	1.41	1.75
100-Yr	0.63	0.95	1.18	1.59	1.97
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
50-Yr	6.66	5.07	4.20	2.82	1.75
100-Yr	7.51	5.72	4.72	3.18	1.97

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.20
100-Yr	1.25	1.25

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. = 1

Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	50-Yr: Minim allowed Tc,tot =			0.0		100-Yr: Minim allowed Tc,tot =			5.0	
													Cw AF=1.20	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 50-Yr (cfs)	Cw AF=1.25	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 100-Yr (cfs)
CP1		0.19	0.800	68	95	94	0.0147	A	-0.00625	0.04	0.0445	0	0.95	1.9	1.9	6.66	1.2	0.95	1.9	5.0	7.51	1.4
CP2		2.29	0.800	392	97	96	0.0026	A	-0.00625	0.04	0.0378	0	0.95	7.7	7.7	6.02	13.1	0.95	7.3	7.3	6.79	14.8
CP3		3.44	0.800	230	96	93	0.0130	A	-0.00625	0.04	0.0366	0	0.95	3.4	3.4	6.66	21.8	0.95	3.2	5.0	7.51	24.5
CP4		23.70	0.800	1362	97	90	0.0051	A	-0.00625	0.04	0.0314	0	0.95	11.3	11.3	4.90	110.2	0.95	10.6	10.6	5.72	128.7
CP5		1.50	0.800	126	94	91	0.0238	A	-0.00625	0.04	0.0389	0	0.95	2.1	2.1	6.66	9.5	0.95	2.0	5.0	7.51	10.7
CP6		0.71	0.800	114	95	93.5	0.0132	A	-0.00625	0.04	0.0409	0	0.95	2.5	2.5	6.66	4.5	0.95	2.4	5.0	7.51	5.1

Appendix C: Post-Development Hydrologic Calculations

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Artesia
Proj #:	191166007
Date:	5/17/17
Prep by:	CGF
Check by:	MLD

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
2-Yr	0.24	0.37	0.46	0.62	0.77
10-Yr	0.40	0.60	0.75	1.01	1.25
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
2-Yr	2.92	2.22	1.84	1.24	0.77
10-Yr	4.75	3.62	2.99	2.02	1.25

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. = 1

Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	2-Yr: Minim allowed Tc,tot = 0.0				Q 2-Yr (cfs)	10-Yr: Minim allowed Tc,tot = 5.0				Q 10-Yr (cfs)
													Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)		Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	
A1		2.63	0.800	1082	95.35	90	0.0049	A	-0.00625	0.04	0.0374	0	0.80	16.3	16.3	1.80	3.8	0.80	12.9	12.9	3.37	7.1
A2		0.51	0.800	242	95.27	93.64	0.0067	A	-0.00625	0.04	0.0418	0	0.80	6.3	6.3	2.78	1.1	0.80	5.1	5.1	4.75	1.9
A3		0.15	0.800	170	94.6	94	0.0035	A	-0.00625	0.04	0.0451	0	0.80	6.7	6.7	2.78	0.3	0.80	5.5	5.5	4.75	0.6
A4		0.49	0.800	216	94	93	0.0046	A	-0.00625	0.04	0.0419	0	0.80	6.7	6.7	2.78	1.1	0.80	5.5	5.5	4.75	1.9
A5		0.23	0.800	164	93.5	92.6	0.0055	A	-0.00625	0.04	0.0440	0	0.80	5.6	5.6	2.92	0.5	0.80	4.6	5.0	4.75	0.9
A6		0.40	0.800	185	95	91.77	0.0175	A	-0.00625	0.04	0.0425	0	0.80	4.1	4.1	2.92	0.9	0.80	3.4	5.0	4.75	1.5
A7		0.57	0.800	271	95	94	0.0037	A	-0.00625	0.04	0.0415	0	0.80	8.3	8.3	2.50	1.1	0.80	6.6	6.6	4.53	2.1
A8		0.26	0.800	218	94	93	0.0046	A	-0.00625	0.04	0.0437	0	0.80	6.9	6.9	2.78	0.6	0.80	5.6	5.6	4.75	1.0
A9		0.72	0.800	292	93	92.4	0.0021	A	-0.00625	0.04	0.0409	0	0.80	10.8	10.8	2.22	1.3	0.80	8.5	8.5	4.07	2.3
A10		1.99	0.800	1250	96.21	92	0.0034	A	-0.00625	0.04	0.0381	0	0.80	20.7	20.7	1.64	2.6	0.80	16.6	16.6	2.92	4.7
A11		0.48	0.800	310	92.5	90	0.0081	A	-0.00625	0.04	0.0420	0	0.80	6.8	6.8	2.78	1.1	0.80	5.5	5.5	4.75	1.8
A12		1.45	0.800	45	93.2	92.4	0.0178	A	-0.00625	0.04	0.0390	0	0.80	1.9	1.9	2.92	3.4	0.80	1.6	5.0	4.75	5.5
A13		0.25	0.800	174	95	94	0.0057	A	-0.00625	0.04	0.0438	0	0.80	5.6	5.6	2.92	0.6	0.80	4.7	5.0	4.75	1.0
B1		0.56	0.800	250	97.5	93	0.0180	A	-0.00625	0.04	0.0416	0	0.80	4.6	4.6	2.92	1.3	0.80	3.8	5.0	4.75	2.1
B2*		0.25	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0438	0	0.80	3.6	3.6	2.92	0.6	0.80	3.0	5.0	4.75	1.0
B3*		0.11	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0460	0	0.80	3.7	3.7	2.92	0.3	0.80	3.1	5.0	4.75	0.4
B4*		0.28	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0435	0	0.80	3.6	3.6	2.92	0.7	0.80	3.0	5.0	4.75	1.1

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Artesia
Proj #:	191166007
Date:	5/17/17
Prep by:	CGF
Check by:	MLD

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
2-Yr	0.24	0.37	0.46	0.62	0.77
10-Yr	0.40	0.60	0.75	1.01	1.25
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
2-Yr	2.92	2.22	1.84	1.24	0.77
10-Yr	4.75	3.62	2.99	2.02	1.25

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. = 1

Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	2-Yr: Minim allowed Tc,tot = 0.0 — Cw AF=1.00	2-Yr: Tc,calc (min)	2-Yr: Tc,tot (min)	2-Yr: i (in/hr)	2-Yr: Q (cfs)	10-Yr: Minim allowed Tc,tot = 5.0 — Cw AF=1.00	10-Yr: Tc,calc (min)	10-Yr: Tc,tot (min)	10-Yr: i (in/hr)	10-Yr: Q (cfs)
B5		0.29	0.800	236	94.5	92.5	0.0085	A	-0.00625	0.04	0.0434	0	0.80	5.8	5.8	2.92	0.7	0.80	4.8	5.0	4.75	1.1
B6		0.04	0.800	146	93.4	93.2	0.0014	A	-0.00625	0.04	0.0487	0	0.80	9.2	9.2	2.36	0.1	0.80	7.4	7.4	4.30	0.1
B7*		0.28	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0435	0	0.80	3.6	3.6	2.92	0.7	0.80	3.0	5.0	4.75	1.1
B8*		0.11	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0460	0	0.80	3.7	3.7	2.92	0.3	0.80	3.1	5.0	4.75	0.4
B9*		0.25	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0438	0	0.80	3.6	3.6	2.92	0.6	0.80	3.0	5.0	4.75	1.0
B10		1.02	0.800	264	96	94.5	0.0057	A	-0.00625	0.04	0.0399	0	0.80	6.8	6.8	2.78	2.3	0.80	5.5	5.5	4.75	3.9
B11		0.48	0.800	265	96.6	94.7	0.0072	A	-0.00625	0.04	0.0420	0	0.80	6.5	6.5	2.78	1.1	0.80	5.3	5.3	4.75	1.8
B12*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	3.8	3.8	2.92	0.1	0.80	3.1	5.0	4.75	0.2
B13		0.30	0.800	115	95.3	92.8	0.0217	A	-0.00625	0.04	0.0433	0	0.80	3.0	3.0	2.92	0.7	0.80	2.5	5.0	4.75	1.1
B14		0.48	0.800	202	95.3	92.8	0.0124	A	-0.00625	0.04	0.0420	0	0.80	4.7	4.7	2.92	1.1	0.80	3.9	5.0	4.75	1.8
B15*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	3.8	3.8	2.92	0.1	0.80	3.1	5.0	4.75	0.2
B16*		0.25	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0438	0	0.80	3.6	3.6	2.92	0.6	0.80	3.0	5.0	4.75	1.0
B17		1.26	0.800	115	93.64	90.89	0.0239	A	-0.00625	0.04	0.0394	0	0.80	2.8	2.8	2.92	2.9	0.80	2.3	5.0	4.75	4.8
B18		1.72	0.800	760	96.3	92.23	0.0054	A	-0.00625	0.04	0.0385	0	0.80	12.9	12.9	2.07	2.8	0.80	10.4	10.4	3.62	5.0
B19		0.07	0.800	82	93.08	92.43	0.0079	A	-0.00625	0.04	0.0472	0	0.80	3.6	3.6	2.92	0.2	0.80	3.0	5.0	4.75	0.3
C1*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	3.8	3.8	2.92	0.1	0.80	3.1	5.0	4.75	0.2
C2		0.12	0.800	60	96.3	95.27	0.0172	A	-0.00625	0.04	0.0458	0	0.80	2.4	2.4	2.92	0.3	0.80	2.0	5.0	4.75	0.5

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Artesia
Proj #:	191166007
Date:	5/17/17
Prep by:	CGF
Check by:	MLD

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
2-Yr	0.24	0.37	0.46	0.62	0.77
10-Yr	0.40	0.60	0.75	1.01	1.25
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
2-Yr	2.92	2.22	1.84	1.24	0.77
10-Yr	4.75	3.62	2.99	2.02	1.25

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. | 1 | Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	2-Yr: Minim allowed Tc,tot =			0.0	Q	10-Yr: Minim allowed Tc,tot =			5.0	Q
													Cw	Tc,calc	Tc,tot	i	2-Yr	Cw	Tc,calc	Tc,tot	i	10-Yr
													AF=1.00	(min)	(min)	(in/hr)	(cfs)	AF=1.00	(min)	(min)	(in/hr)	(cfs)
C3*		0.22	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0441	0	0.80	3.6	3.6	2.92	0.5	0.80	3.0	5.0	4.75	0.8
C4		0.30	0.800	135	97	94.8	0.0163	A	-0.00625	0.04	0.0433	0	0.80	3.6	3.6	2.92	0.7	0.80	3.0	5.0	4.75	1.1
C5*		0.10	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.80	3.7	3.7	2.92	0.2	0.80	3.1	5.0	4.75	0.4
C6		0.23	0.800	150	97	94.8	0.0147	A	-0.00625	0.04	0.0440	0	0.80	3.9	3.9	2.92	0.5	0.80	3.3	5.0	4.75	0.9
C7		0.57	0.800	350	95.2	84.5	0.0306	A	-0.00625	0.04	0.0415	0	0.80	4.6	4.6	2.92	1.3	0.80	3.9	5.0	4.75	2.2
D1*		0.11	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0460	0	0.80	3.7	3.7	2.92	0.3	0.80	3.1	5.0	4.75	0.4
D2*		0.28	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0435	0	0.80	3.6	3.6	2.92	0.7	0.80	3.0	5.0	4.75	1.1
D3		0.84	0.800	170	94.9	92.42	0.0146	A	-0.00625	0.04	0.0405	0	0.80	4.0	4.0	2.92	2.0	0.80	3.3	5.0	4.75	3.2
D4*		0.28	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0435	0	0.80	3.6	3.6	2.92	0.7	0.80	3.0	5.0	4.75	1.1
D5*		0.11	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0460	0	0.80	3.7	3.7	2.92	0.3	0.80	3.1	5.0	4.75	0.4
D6*		0.25	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0438	0	0.80	3.6	3.6	2.92	0.6	0.80	3.0	5.0	4.75	1.0
D7		0.19	0.800	120	95	93.55	0.0121	A	-0.00625	0.04	0.0445	0	0.80	3.8	3.8	2.92	0.4	0.80	3.1	5.0	4.75	0.7
D8		1.21	0.800	440	96.9	93.66	0.0074	A	-0.00625	0.04	0.0395	0	0.80	8.3	8.3	2.50	2.4	0.80	6.7	6.7	4.53	4.4
D9		0.25	0.800	240	96	93.45	0.0106	A	-0.00625	0.04	0.0438	0	0.80	5.5	5.5	2.92	0.6	0.80	4.5	5.0	4.75	1.0
D10*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	3.8	3.8	2.92	0.1	0.80	3.1	5.0	4.75	0.2
D11		0.44	0.800	149	95	94.31	0.0046	A	-0.00625	0.04	0.0422	0	0.80	5.5	5.5	2.92	1.0	0.80	4.6	5.0	4.75	1.7

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Artesia
Proj #:	191166007
Date:	5/17/17
Prep by:	CGF
Check by:	MLD

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
2-Yr	0.24	0.37	0.46	0.62	0.77
10-Yr	0.40	0.60	0.75	1.01	1.25
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
2-Yr	2.92	2.22	1.84	1.24	0.77
10-Yr	4.75	3.62	2.99	2.02	1.25

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. = 1

Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	2-Yr: Minim allowed Tc,tot = 0.0 — Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 2-Yr (cfs)	10-Yr: Minim allowed Tc,tot = 5.0 — Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 10-Yr (cfs)
E1*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	3.8	3.8	2.92	0.1	0.80	3.1	5.0	4.75	0.2
E2*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	3.8	3.8	2.92	0.1	0.80	3.1	5.0	4.75	0.2
E3*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	3.8	3.8	2.92	0.1	0.80	3.1	5.0	4.75	0.2
F1		0.73	0.800	241	95.78	93.54	0.0093	A	-0.00625	0.04	0.0409	0	0.80	5.5	5.5	2.92	1.7	0.80	4.6	5.0	4.75	2.8
F2		0.27	0.800	107	95.5	94.3	0.0112	A	-0.00625	0.04	0.0436	0	0.80	3.6	3.6	2.92	0.6	0.80	3.0	5.0	4.75	1.0
H1		0.82	0.800	300	97.5	95.5	0.0067	A	-0.00625	0.04	0.0405	0	0.80	6.9	6.9	2.78	1.8	0.80	5.6	5.6	4.75	3.1
H2		0.09	0.800	80	96.9	95.7	0.0150	A	-0.00625	0.04	0.0465	0	0.80	2.9	2.9	2.92	0.2	0.80	2.4	5.0	4.75	0.3
J1		0.91	0.800	150	97.5	94.4	0.0207	A	-0.00625	0.04	0.0403	0	0.80	3.4	3.4	2.92	2.1	0.80	2.8	5.0	4.75	3.5
CH1		2.06	0.800	852	95.5	94.1	0.0016	A	-0.00625	0.04	0.0380	0	0.80	21.5	21.5	1.60	2.6	0.80	17.2	17.2	2.86	4.7

Peak Flow Calculations Using The Rational Method

Project:	Artesia
Proj #:	191166007.00
Date:	5/17/17
Prep by:	CGF
Check by:	MLD

Base Sheet Prepared By GA, Version 2

Source of Rainfall Data --->NOAA Atlas 14

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
50-Yr	0.56	0.85	1.05	1.41	1.75
100-Yr	0.63	0.95	1.18	1.59	1.97
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
50-Yr	6.66	5.07	4.20	2.82	1.75
100-Yr	7.51	5.72	4.72	3.18	1.97

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc.

1 Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	50-Yr Minim allowed Tc,tot = 0.0					100-Yr Minim allowed Tc,tot = 5.0				
													Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 50-Yr (cfs)	Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 100-Yr (cfs)
A1		2.63	0.800	1082	95.35	90	0.0049	A	-0.00625	0.04	0.0374	0	0.80	11.1	11.1	4.90	10.3	0.80	10.5	10.5	5.72	12.0
A2		0.51	0.800	242	95.27	93.64	0.0067	A	-0.00625	0.04	0.0418	0	0.80	4.5	4.5	6.66	2.7	0.80	4.3	5.0	7.51	3.1
A3		0.15	0.800	170	94.6	94	0.0035	A	-0.00625	0.04	0.0451	0	0.80	4.8	4.8	6.66	0.8	0.80	4.6	5.0	7.51	0.9
A4		0.49	0.800	216	94	93	0.0046	A	-0.00625	0.04	0.0419	0	0.80	4.8	4.8	6.66	2.6	0.80	4.6	5.0	7.51	2.9
A5		0.23	0.800	164	93.5	92.6	0.0055	A	-0.00625	0.04	0.0440	0	0.80	4.1	4.1	6.66	1.2	0.80	3.9	5.0	7.51	1.4
A6		0.40	0.800	185	95	91.77	0.0175	A	-0.00625	0.04	0.0425	0	0.80	3.0	3.0	6.66	2.1	0.80	2.8	5.0	7.51	2.4
A7		0.57	0.800	271	95	94	0.0037	A	-0.00625	0.04	0.0415	0	0.80	5.7	5.7	6.66	3.0	0.80	5.5	5.5	7.51	3.4
A8		0.26	0.800	218	94	93	0.0046	A	-0.00625	0.04	0.0437	0	0.80	4.9	4.9	6.66	1.4	0.80	4.7	5.0	7.51	1.6
A9		0.72	0.800	292	93	92.4	0.0021	A	-0.00625	0.04	0.0409	0	0.80	7.4	7.4	6.02	3.5	0.80	6.9	6.9	7.15	4.1
A10		1.99	0.800	1250	96.21	92	0.0034	A	-0.00625	0.04	0.0381	0	0.80	14.2	14.2	4.37	7.0	0.80	13.4	13.4	5.12	8.1
A11		0.48	0.800	310	92.5	90	0.0081	A	-0.00625	0.04	0.0420	0	0.80	4.8	4.8	6.66	2.6	0.80	4.6	5.0	7.51	2.9
A12		1.45	0.800	45	93.2	92.4	0.0178	A	-0.00625	0.04	0.0390	0	0.80	1.4	1.4	6.66	7.7	0.80	1.3	5.0	7.51	8.7
A13		0.25	0.800	174	95	94	0.0057	A	-0.00625	0.04	0.0438	0	0.80	4.1	4.1	6.66	1.3	0.80	3.9	5.0	7.51	1.5
B1		0.56	0.800	250	97.5	93	0.0180	A	-0.00625	0.04	0.0416	0	0.80	3.4	3.4	6.66	3.0	0.80	3.2	5.0	7.51	3.4
B2*		0.25	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0438	0	0.80	2.6	2.6	6.66	1.3	0.80	2.5	5.0	7.51	1.5
B3*		0.11	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0460	0	0.80	2.7	2.7	6.66	0.6	0.80	2.6	5.0	7.51	0.7
B4*		0.28	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0435	0	0.80	2.6	2.6	6.66	1.5	0.80	2.5	5.0	7.51	1.7

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Artesia
Proj #:	191166007.00
Date:	5/17/17
Prep by:	CGF
Check by:	MLD

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
50-Yr	0.56	0.85	1.05	1.41	1.75
100-Yr	0.63	0.95	1.18	1.59	1.97
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
50-Yr	6.66	5.07	4.20	2.82	1.75
100-Yr	7.51	5.72	4.72	3.18	1.97

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. = 1

Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	50-Yr: Minim allowed Tc,tot =			0.0	Q	100-Yr: Minim allowed Tc,tot =			5.0	Q
													Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	50-Yr (cfs)	Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	100-Yr (cfs)
B5		0.29	0.800	236	94.5	92.5	0.0085	A	-0.00625	0.04	0.0434	0	0.80	4.2	4.2	6.66	1.5	0.80	4.0	5.0	7.51	1.7
B6		0.04	0.800	146	93.4	93.2	0.0014	A	-0.00625	0.04	0.0487	0	0.80	6.3	6.3	6.34	0.2	0.80	5.9	5.9	7.51	0.2
B7*		0.28	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0435	0	0.80	2.6	2.6	6.66	1.5	0.80	2.5	5.0	7.51	1.7
B8*		0.11	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0460	0	0.80	2.7	2.7	6.66	0.6	0.80	2.6	5.0	7.51	0.7
B9*		0.25	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0438	0	0.80	2.6	2.6	6.66	1.3	0.80	2.5	5.0	7.51	1.5
B10		1.02	0.800	264	96	94.5	0.0057	A	-0.00625	0.04	0.0399	0	0.80	4.9	4.9	6.66	5.4	0.80	4.6	5.0	7.51	6.1
B11		0.48	0.800	265	96.6	94.7	0.0072	A	-0.00625	0.04	0.0420	0	0.80	4.6	4.6	6.66	2.6	0.80	4.4	5.0	7.51	2.9
B12*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	2.8	2.8	6.66	0.3	0.80	2.6	5.0	7.51	0.3
B13		0.30	0.800	115	95.3	92.8	0.0217	A	-0.00625	0.04	0.0433	0	0.80	2.2	2.2	6.66	1.6	0.80	2.1	5.0	7.51	1.8
B14		0.48	0.800	202	95.3	92.8	0.0124	A	-0.00625	0.04	0.0420	0	0.80	3.4	3.4	6.66	2.6	0.80	3.3	5.0	7.51	2.9
B15*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	2.8	2.8	6.66	0.3	0.80	2.6	5.0	7.51	0.3
B16*		0.25	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0438	0	0.80	2.6	2.6	6.66	1.3	0.80	2.5	5.0	7.51	1.5
B17		1.26	0.800	115	93.64	90.89	0.0239	A	-0.00625	0.04	0.0394	0	0.80	2.0	2.0	6.66	6.7	0.80	1.9	5.0	7.51	7.6
B18		1.72	0.800	760	96.3	92.23	0.0054	A	-0.00625	0.04	0.0385	0	0.80	8.7	8.7	5.71	7.9	0.80	8.3	8.3	6.44	8.9
B19		0.07	0.800	82	93.08	92.43	0.0079	A	-0.00625	0.04	0.0472	0	0.80	2.7	2.7	6.66	0.4	0.80	2.5	5.0	7.51	0.4
C1*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	2.8	2.8	6.66	0.3	0.80	2.6	5.0	7.51	0.3
C2		0.12	0.800	60	96.3	95.27	0.0172	A	-0.00625	0.04	0.0458	0	0.80	1.8	1.8	6.66	0.6	0.80	1.7	5.0	7.51	0.7

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
50-Yr	0.56	0.85	1.05	1.41	1.75
100-Yr	0.63	0.95	1.18	1.59	1.97
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
50-Yr	6.66	5.07	4.20	2.82	1.75
100-Yr	7.51	5.72	4.72	3.18	1.97

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Project: Artesia
Proj #: 191166007.00
Date: 5/17/17
Prep by: CGF
Check by: MLD

Base Sheet Prepared By GA, Version 2

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. = 1

Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	50-Yr: Minim allowed Tc,tot = 0.0 — Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 50-Yr (cfs)	100-Yr: Minim allowed Tc,tot = 5.0 — Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	Q 100-Yr (cfs)
C3*		0.22	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0441	0	0.80	2.6	2.6	6.66	1.2	0.80	2.5	5.0	7.51	1.3
C4		0.30	0.800	135	97	94.8	0.0163	A	-0.00625	0.04	0.0433	0	0.80	2.6	2.6	6.66	1.6	0.80	2.5	5.0	7.51	1.8
C5*		0.10	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0463	0	0.80	2.7	2.7	6.66	0.5	0.80	2.6	5.0	7.51	0.6
C6		0.23	0.800	150	97	94.8	0.0147	A	-0.00625	0.04	0.0440	0	0.80	2.9	2.9	6.66	1.2	0.80	2.7	5.0	7.51	1.4
C7		0.57	0.800	350	95.2	84.5	0.0306	A	-0.00625	0.04	0.0415	0	0.80	3.4	3.4	6.66	3.0	0.80	3.2	5.0	7.51	3.4
D1*		0.11	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0460	0	0.80	2.7	2.7	6.66	0.6	0.80	2.6	5.0	7.51	0.7
D2*		0.28	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0435	0	0.80	2.6	2.6	6.66	1.5	0.80	2.5	5.0	7.51	1.7
D3		0.84	0.800	170	94.9	92.42	0.0146	A	-0.00625	0.04	0.0405	0	0.80	2.9	2.9	6.66	4.5	0.80	2.8	5.0	7.51	5.0
D4*		0.28	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0435	0	0.80	2.6	2.6	6.66	1.5	0.80	2.5	5.0	7.51	1.7
D5*		0.11	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0460	0	0.80	2.7	2.7	6.66	0.6	0.80	2.6	5.0	7.51	0.7
D6*		0.25	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0438	0	0.80	2.6	2.6	6.66	1.3	0.80	2.5	5.0	7.51	1.5
D7		0.19	0.800	120	95	93.55	0.0121	A	-0.00625	0.04	0.0445	0	0.80	2.7	2.7	6.66	1.0	0.80	2.6	5.0	7.51	1.1
D8		1.21	0.800	440	96.9	93.66	0.0074	A	-0.00625	0.04	0.0395	0	0.80	5.8	5.8	6.66	6.4	0.80	5.5	5.5	7.51	7.3
D9		0.25	0.800	240	96	93.45	0.0106	A	-0.00625	0.04	0.0438	0	0.80	4.0	4.0	6.66	1.3	0.80	3.8	5.0	7.51	1.5
D10*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	2.8	2.8	6.66	0.3	0.80	2.6	5.0	7.51	0.3
D11		0.44	0.800	149	95	94.31	0.0046	A	-0.00625	0.04	0.0422	0	0.80	4.0	4.0	6.66	2.3	0.80	3.8	5.0	7.51	2.6

Peak Flow Calculations Using The Rational Method

Source of Rainfall Data --->NOAA Atlas 14

Project:	Artesia
Proj #:	191166007.00
Date:	5/17/17
Prep by:	CGF
Check by:	MLD

Base Sheet Prepared By GA, Version 2

Rainfall Depth-Duration-Frequency (D-D-F), (inch)					
Storm Fequency	Time				
	5 min	10 min	15 min	30 min	60 min
50-Yr	0.56	0.85	1.05	1.41	1.75
100-Yr	0.63	0.95	1.18	1.59	1.97
Derived Rainfall Intensity-Duration-Frequency (I-D-F), (in/hr)					
50-Yr	6.66	5.07	4.20	2.82	1.75
100-Yr	7.51	5.72	4.72	3.18	1.97

Attach source and supporting data for rainfall depths

AF for Cw per $Cw_{10\text{-}Yr}$		
Freq.	Typical	Applic.
2-Yr	1.00	1.00
5-Yr	1.00	1.00
10-Yr	1.00	1.00
25-Yr	1.10	1.00
50-Yr	1.20	1.00
100-Yr	1.25	1.00

AF=Frequency Adjustment Factor

Drainage Area ID: -----

Tc,calc method: 1=Papadakis and Kazan, 2=Avg Veloc. = 1

Tc,calc=11.4*L^0.5*Kb^0.52*S^-0.31*i^-0.38

Cw for each frequency is adjusted as a function of the 100-year value per the table above

Concent. Point #	Contributing Sub-basins	Total Area (ac)	Base Cw (2-10 yr)	Flow Path, L (ft)	Approx High pt (ft)	Approx Low pt (ft)	Average Slope ft/ft	K_b Class A-->D	m	b	K_b	Initial/lot Tc (min)	50-Yr: Minim allowed Tc,tot =			0.0	Q	100-Yr: Minim allowed Tc,tot =			5.0	Q
													Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	50-Yr (cfs)	Cw AF=1.00	Tc,calc (min)	Tc,tot (min)	i (in/hr)	100-Yr (cfs)
E1*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	2.8	2.8	6.66	0.3	0.80	2.6	5.0	7.51	0.3
E2*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	2.8	2.8	6.66	0.3	0.80	2.6	5.0	7.51	0.3
E3*		0.05	0.800	100	1	0	0.0100	A	-0.00625	0.04	0.0481	0	0.80	2.8	2.8	6.66	0.3	0.80	2.6	5.0	7.51	0.3
F1		0.73	0.800	241	95.78	93.54	0.0093	A	-0.00625	0.04	0.0409	0	0.80	4.0	4.0	6.66	3.9	0.80	3.9	5.0	7.51	4.4
F2		0.27	0.800	107	95.5	94.3	0.0112	A	-0.00625	0.04	0.0436	0	0.80	2.6	2.6	6.66	1.4	0.80	2.5	5.0	7.51	1.6
0		0.00	0.000	0	0	0	#DIV/0!						0.00					0.00				
H1		0.82	0.800	300	97.5	95.5	0.0067	A	-0.00625	0.04	0.0405	0	0.80	5.0	5.0	6.66	4.4	0.80	4.7	5.0	7.51	4.9
H2		0.09	0.800	80	96.9	95.7	0.0150	A	-0.00625	0.04	0.0465	0	0.80	2.1	2.1	6.66	0.5	0.80	2.0	5.0	7.51	0.5
J1		0.91	0.800	150	97.5	94.4	0.0207	A	-0.00625	0.04	0.0403	0	0.80	2.5	2.5	6.66	4.8	0.80	2.4	5.0	7.51	5.5
CH1		2.06	0.800	852	95.5	94.1	0.0016	A	-0.00625	0.04	0.0380	0	0.80	14.7	14.7	4.37	7.2	0.80	13.8	13.8	5.12	8.4

Kimley»Horn

Appendix D: On-Site Post Development Hydraulic Analysis

Title: FlexTable: Conduit Table

Active Scenario: 10 Year

Label	Start Node	Stop Node	Diameter (in)	Length (Unified) (ft)	Flow (ft^3/s)	Velocity (ft/s)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Invert (Start) (ft)	Invert (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
P-F1	I-F1	O-F1	12.0	16.0	2.80	3.57	93.54	95.00	91.00	90.50	94.21	94.13
P-E2	I-E2	J-E2	8.0	15.0	0.20	3.11	95.50	95.40	91.70	91.48	91.91	91.81
P-E1	I-E1	J-E1	8.0	15.0	0.20	3.77	95.50	95.40	91.70	91.32	91.91	91.73
P-E4a	J-E2	J-E1	12.0	45.0	0.40	2.20	95.40	95.40	91.48	91.32	91.77	91.73
P-E3	I-E3	J-E3	8.0	15.0	0.20	1.95	95.50	95.40	91.70	91.64	91.92	91.88
P-E4	J-E3	J-E2	12.0	46.0	0.20	1.78	95.40	95.40	91.64	91.48	91.85	91.81
P-B17a	J-B17	MH-B25	18.0	86.0	4.80	2.72	91.50	90.55	83.01	80.73	87.21	87.05
P-B26	MH-B25	J-125	60.0	119.0	55.20	2.81	90.55	88.90	78.98	78.58	86.98	86.94
P-B25	MH-B24	MH-B25	60.0	206.0	50.40	2.57	92.02	90.55	79.76	79.08	87.12	87.05
P-B24a	J-B16a	MH-B24	42.0	42.0	32.50	3.38	92.75	92.02	81.31	80.51	87.23	87.19
P-B16	I-B16	J-B16	8.0	13.0	1.00	13.16	94.04	93.30	91.20	88.21	91.67	88.79
P-B16a	J-B16	J-B16a	8.0	25.0	1.00	12.93	93.30	92.75	88.21	82.72	88.68	87.34
P-B17	I-B17	J-B17	18.0	75.0	4.80	2.72	90.15	91.50	84.96	83.01	87.40	87.26
P-D15	MH-D15	MH-B24	36.0	42.0	17.90	2.53	93.00	92.02	81.27	80.76	87.22	87.19
P-D13	MH-D13	MH-D12	30.0	109.0	11.50	5.36	94.01	93.64	86.75	86.33	88.14	88.11
P-D14	J-D10	MH-D13	30.0	122.0	9.80	5.26	94.46	94.01	87.45	86.95	88.50	88.35
P-D9	I-D9	J-D10	30.0	86.0	9.60	5.11	93.95	94.46	87.98	87.65	89.01	88.73
P-D8	I-D11	I-D9	24.0	43.0	8.60	4.92	94.31	93.95	88.34	88.18	89.43	89.25
P-D6	I-D6	J-D6	12.0	33.0	1.00	6.53	94.52	94.25	90.90	89.71	91.32	90.40
P-D6a	J-D6	MH-D13	12.0	61.0	1.70	7.59	94.25	94.01	89.71	87.52	90.26	88.35
P-D7	I-D7	J-D6	10.0	28.0	0.70	2.77	93.55	94.25	89.83	89.71	90.42	90.40
P-D10	I-D10	J-D10	8.0	47.0	0.20	5.12	94.50	94.46	91.20	88.37	91.41	88.73
P-D4	I-D4	J-D4	10.0	28.0	1.10	11.76	94.21	93.38	90.40	85.76	90.87	87.94
P-D2	I-D2	J-D2	10.0	28.0	1.10	12.10	93.94	93.11	90.40	85.38	90.87	87.69
P-D12a	J-D3	J-D2	30.0	25.0	16.20	5.93	93.13	93.11	85.48	85.38	87.71	87.69
P-D12b	J-D4	J-D3	30.0	71.0	13.00	5.58	93.38	93.13	85.76	85.48	87.86	87.82
P-D12c	J-D5	J-D4	30.0	54.0	11.90	5.43	93.56	93.38	85.97	85.76	87.96	87.94
P-D12d	MH-D12	J-D5	30.0	41.0	11.50	5.39	93.64	93.56	86.13	85.97	88.05	88.03
P-D5	I-D5	J-D5	8.0	28.0	0.40	9.23	94.26	93.56	91.00	85.97	91.29	88.03
P-D1	I-D1	MH-D1	8.0	28.0	0.40	9.02	94.22	93.03	91.00	86.32	91.29	87.51
P-D12	J-D2	MH-D1	30.0	48.0	17.30	6.00	93.11	93.03	85.38	85.19	87.55	87.51
P-D11a	MH-D1	J-15a	36.0	153.0	17.70	10.24	93.03	94.00	84.99	82.38	87.43	87.37
P-D11	J-15a	MH-D15	36.0	54.0	17.90	2.53	94.00	93.00	82.38	81.47	87.31	87.28
P-B15	I-B15	J-B15	10.0	25.0	0.20	7.31	94.44	94.50	90.90	86.38	91.09	87.37
P-15a	J-B15	J-15a	10.0	22.0	0.20	0.37	94.50	94.00	86.38	82.38	87.37	87.37
P-C7	J-C7a	I-D11	24.0	13.0	6.90	8.48	95.00	94.31	88.79	88.54	89.72	89.62
P-C6	I-C6	J-C6	8.0	13.0	0.90	2.58	94.80	94.80	90.80	90.43	91.56	91.50
P-C8a	J-C4	J-C3a	18.0	10.0	4.80	4.36	94.80	95.16	90.16	90.12	91.39	91.38
P-C4	I-C4	J-C4	18.0	13.0	3.30	9.88	94.80	94.80	90.80	90.16	91.49	91.48
P-C3	I-C3	J-C3	10.0	10.0	0.80	3.78	95.50	94.50	91.50	91.41	92.01	92.02
P-C3a	J-C3	J-C3a	10.0	49.0	1.20	6.24	94.50	95.16	91.41	90.12	91.90	91.38
P-C5	I-C5	J-C5a	8.0	10.0	0.40	3.81	95.50	95.00	92.40	92.25	92.69	92.63
P-C5a	J-C5a	J-C3	8.0	58.0	0.40	3.76	95.00	94.50	92.25	91.41	92.54	92.02
P-C8b	J-C6	J-C4	18.0	72.0	1.50	3.14	94.80	94.80	90.43	90.16	91.49	91.48
P-C8c	J-E4c	J-C6	18.0	80.0	0.60	2.41	94.65	94.80	90.73	90.43	91.50	91.50
P-C8	J-C3a	MH-8	18.0	119.0	6.00	4.41	95.16	95.25	90.12	89.68	91.20	90.63
P-C7b	MH-8	J-C2	24.0	46.0	6.00	4.49	95.25	95.60	89.48	89.31	90.36	90.27
P-C7a	J-C2	J-C7a	24.0	141.0	6.90	4.65	95.60	95.00	89.31	88.79	90.27	90.01
P-C1	I-C1	J-C1	8.0	8.0	0.20	5.92	95.50	95.26	91.70	90.97	91.91	91.54
P-C2	I-C2	J-C1	8.0	7.0	0.70	5.92	95.26	95.26	91.20	90.97	91.59	91.54
P-C2a	J-C1	J-C2	8.0	47.0	0.90	6.50	95.26	95.60	90.97	89.31	91.42	90.27
P-E4b	J-E1	J-E4c	12.0	112.0	0.60	2.45	95.40	94.65	91.32	90.93	91.67	91.51
P-B1	I-B1	MH-B1	18.0	29.0	2.10	1.19	93.50	94.00	88.60	88.51	90.27	90.26
P-B2	I-B2	MH-B1	10.0	103.0	1.00	5.78	94.50	94.00	91.40	88.88	91.84	90.26
P-F11	I-B11	J-B11	18.0	49.0	1.80	4.29	94.00	94.36	87.94	87.56	88.99	88.99

Title: FlexTable: Conduit Table

Active Scenario: 10 Year

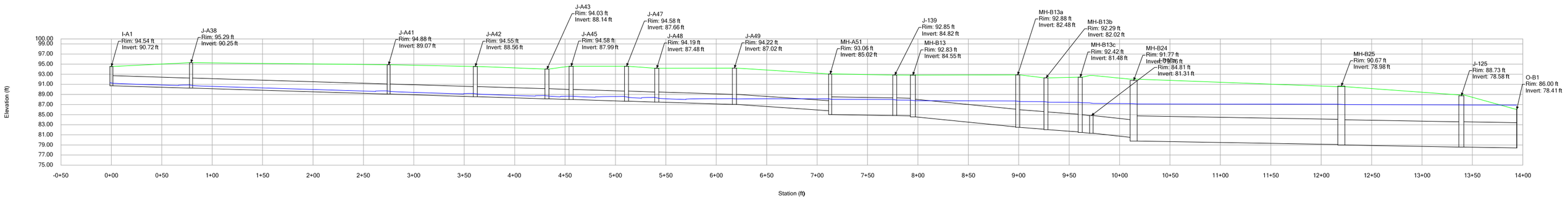
Label	Start Node	Stop Node	Diameter (in)	Length (Unified) (ft)	Flow (ft^3/s)	Velocity (ft/s)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Invert (Start) (ft)	Invert (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
P-C10	I-C1	J-B7	18.0	75.0	3.90	6.59	94.94	93.46	87.93	86.88	89.38	89.29
P-B21d	J-B11	MH-B21	36.0	43.0	23.70	6.09	94.36	94.46	86.56	86.42	88.83	88.80
P-B6	I-B19	MH-B6	36.0	7.0	1.40	4.20	92.43	93.40	87.70	87.62	89.54	89.54
P-B20	MH-B4	MH-B6	30.0	91.0	14.10	5.28	93.20	93.40	87.81	87.52	89.60	89.54
P-B5	I-B5	I-B19	24.0	25.0	1.10	2.76	92.43	92.43	88.03	87.94	89.54	89.54
P-B21	MH-B6	J-B8	36.0	52.0	15.50	5.47	93.40	93.43	87.42	87.24	89.43	89.42
P-B1b	J-B3	MH-B4	18.0	49.0	8.00	4.53	92.90	93.20	88.07	87.91	89.97	89.73
P-B21a	J-B8	J-B7	36.0	110.0	17.00	5.58	93.43	93.46	87.24	86.88	89.32	89.29
P-B21b	J-B7	J-B9	36.0	36.0	20.90	5.97	93.46	94.61	86.88	86.76	89.17	89.16
P-B21c	J-B9	J-B11	36.0	58.0	21.90	5.97	94.61	94.36	86.76	86.56	89.02	88.99
P-B9	I-B9	J-B9	10.0	96.0	1.00	6.65	94.59	94.61	91.40	87.92	91.84	89.16
P-B22	MH-B21	J-B12	36.0	74.0	23.70	6.06	94.46	93.97	86.22	85.98	88.66	88.62
P-B12	I-B12	J-B12	8.0	61.0	0.20	5.48	94.42	93.97	91.70	87.23	91.91	88.62
P-B1a	MH-B1	J-B3	18.0	130.0	3.10	1.75	94.00	92.90	88.51	88.07	90.26	90.16
P-B8	I-B8	J-B8a	10.0	8.0	0.40	7.24	94.24	94.50	91.50	90.72	91.78	91.41
P-B8a	J-B8a	J-B8	10.0	37.0	1.50	8.95	94.50	93.43	90.72	88.49	91.27	89.42
P-B7	I-B7	J-B7a	10.0	8.0	1.10	2.93	93.83	94.00	90.90	90.87	91.57	91.55
P-B7a	J-B7a	J-B8a	10.0	46.0	1.10	2.77	94.00	94.50	90.87	90.72	91.50	91.41
P-F2	I-F2	O-F2	12.0	177.0	1.00	1.27	94.30	94.30	91.08	90.50	94.25	94.13
P-H1a	I-H1	J-H2	18.0	54.0	3.10	1.75	95.53	96.05	90.28	90.11	94.54	94.50
P-H1b	J-H2	O-H1	18.0	154.0	4.10	2.32	96.05	95.00	90.11	89.65	94.50	94.30
P-H2	I-H2	J-H2	12.0	18.0	1.00	1.27	95.65	96.05	90.54	90.11	94.51	94.50
P-B22a	J-B12	J-B13	36.0	119.0	23.90	6.13	93.97	93.75	85.98	85.58	88.48	88.40
P-B22c	J-B13	MH-B22	36.0	35.0	25.70	6.24	93.75	93.68	85.58	85.46	88.26	88.23
P-B22b	I-B14	J-B13	12.0	33.0	1.80	2.29	94.00	93.75	85.75	85.58	88.49	88.40
P-239	I-B18	MH-B4	24.0	39.0	5.00	7.41	93.35	93.20	88.85	88.07	89.64	89.73
P-240	J-125	O-B1	60.0	55.0	35.20	1.79	88.90	86.00	78.58	78.41	86.91	86.90
P-242	J-125	O-5	36.0	31.0	20.00	0.00	88.90	86.00	78.58	78.30	80.02	79.52
P-243	I-D3	J-D3	12.0	64.0	3.20	9.11	92.00	93.13	88.26	85.48	89.03	87.82
P-A36	I-A1	J-A38	24.0	79.0	2.12	3.98	94.54	95.29	90.72	90.25	91.23	90.88
P-A39	J-A38	J-A41	24.0	196.0	2.23	4.05	95.29	94.88	90.25	89.07	90.77	89.72
P-A42	J-A41	J-A42	24.0	86.0	2.35	4.09	94.88	94.55	89.07	88.56	89.60	89.21
P-A43	J-A42	J-A43	24.0	71.0	2.35	4.09	94.55	94.03	88.56	88.14	89.09	88.79
P-A44	J-A43	J-A45	24.0	24.0	2.35	4.17	94.03	94.58	88.14	87.99	88.67	88.65
P-A46	J-A45	J-A47	24.0	55.0	3.52	4.62	94.58	94.58	87.99	87.66	88.65	88.59
P-A48	J-A47	J-A48	24.0	30.0	4.70	5.01	94.58	94.19	87.66	87.48	88.42	88.41
P-A49	J-A48	J-A49	24.0	77.0	4.70	5.00	94.19	94.22	87.48	87.02	88.24	88.18
P-B22d	MH-B22	MH-A51	42.0	73.0	25.70	8.14	93.68	93.06	85.26	84.75	88.15	88.14
P-A51	J-A49	MH-A51	24.0	95.0	4.70	6.64	94.22	93.06	87.02	85.77	88.11	88.14
P-A37	I-A2	J-A38	8.0	3.0	0.00	0.00	91.75	95.29	91.00	90.25	91.00	90.88
P-A38	I-A3	J-A38	8.0	14.0	0.11	2.80	91.25	95.29	90.50	90.25	90.88	90.88
P-A40	I-A4	J-A41	8.0	13.0	0.00	0.00	91.75	94.88	91.00	89.74	91.00	89.74
P-A41	I-A5	J-A41	8.0	25.0	0.12	3.46	91.25	94.88	90.50	89.74	90.66	89.84
P-A45	I-A6	J-A45	8.0	22.0	1.17	9.56	91.25	94.58	90.50	88.66	91.01	88.92
P-A47	I-A7	J-A47	8.0	37.0	1.18	8.41	91.25	94.58	90.50	88.33	91.01	88.61
P-B22j	MH-B13c	J-B16a	42.0	11.0	31.50	3.27	92.42	92.75	81.48	81.31	87.34	87.34
P-B22g	MH-B13	MH-B13a	42.0	104.0	31.50	12.34	92.83	92.88	84.55	82.58	87.77	87.70
P-B22h	MH-B13a	MH-B13b	42.0	28.0	31.50	3.27	92.88	92.29	82.48	82.11	87.60	87.57
P-B22i	MH-B13b	MH-B13c	42.0	34.0	31.50	3.27	92.29	92.42	82.02	81.58	87.47	87.44
P-267	I-B3	I-B6	8.0	14.0	0.40	8.25	93.90	93.05	91.50	89.67	91.79	90.70
P-268	I-B6	J-B3	18.0	42.0	4.90	8.20	93.05	92.90	89.67	88.77	90.52	90.16
P-237	I-B4	MH-B4	10.0	54.0	1.10	7.45	93.55	93.20	90.90	88.41	91.37	89.73
P-B22e	MH-A51	J-139	42.0	64.0	30.40	6.33	93.06	92.85	85.02	84.82	88.03	88.00

Title: FlexTable: Conduit Table

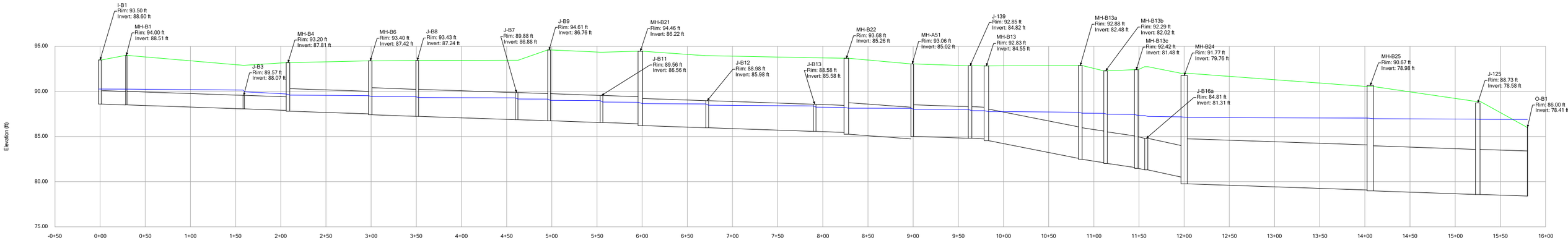
Active Scenario: 10 Year

Label	Start Node	Stop Node	Diameter (in)	Length (Unified) (ft)	Flow (ft^3/s)	Velocity (ft/s)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Invert (Start) (ft)	Invert (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
P-B22f	J-139	MH-B13	42.0	18.0	31.50	6.93	92.85	92.83	84.82	84.75	87.88	87.88
P-B13	I-B13	J-139	18.0	94.0	1.10	4.90	92.92	92.85	87.40	85.82	87.97	88.00
P-C11	I-C1	J-C1	18.0	70.0	3.00	5.07	94.94	95.18	87.93	88.51	89.42	89.43
P-C12	J-C1	I-LAT C1	18.0	67.0	1.00	3.86	95.18	94.61	88.51	89.13	89.50	89.50
P-C13	I-LAT C1	I-LAT C2	18.0	67.0	0.50	2.89	94.61	94.61	89.13	89.62	89.88	89.57
P-C14	J-C1	I-C2	18.0	77.0	2.00	4.54	95.18	94.94	88.51	89.15	89.68	89.50
P-C15	I-C2	I-C3	18.0	30.0	1.50	4.57	94.94	95.00	89.15	89.47	89.93	89.80
P-C16	I-C3	I-C4	18.0	35.0	1.00	3.71	95.00	94.10	89.47	89.76	90.13	90.01
P-C17	I-C4	I-C5	18.0	40.0	0.50	2.78	94.10	94.25	89.76	90.02	90.28	90.20
P-F12	I-B11	J-154	18.0	34.0	1.35	5.00	94.00	96.04	87.20	87.71	89.01	89.01
P-F13	J-154	I-F1A	18.0	16.0	1.35	5.07	96.04	95.10	87.71	87.96	89.01	89.02
P-F14	I-F1A	I-F2	18.0	31.0	1.35	5.01	95.10	95.20	87.96	88.43	88.97	89.02
P-F15	I-F2	I-F3	18.0	40.0	0.90	4.44	95.20	95.35	88.43	89.03	89.38	89.01
P-F16	I-F3	I-F4	18.0	38.0	0.90	4.44	95.35	95.20	89.03	89.60	89.95	89.45
P-F17	I-F4	I-F5	18.0	37.0	0.45	3.63	95.20	95.30	89.60	90.16	90.41	90.02
P-F18	I-F5	I-F6	18.0	39.0	0.45	3.62	95.30	95.20	90.16	90.75	91.00	90.45

Title: Profile Report
Engineering Profile - Profile - A (2018-03-27 Storm CAD.stsw)
Active Scenario: 10 Year

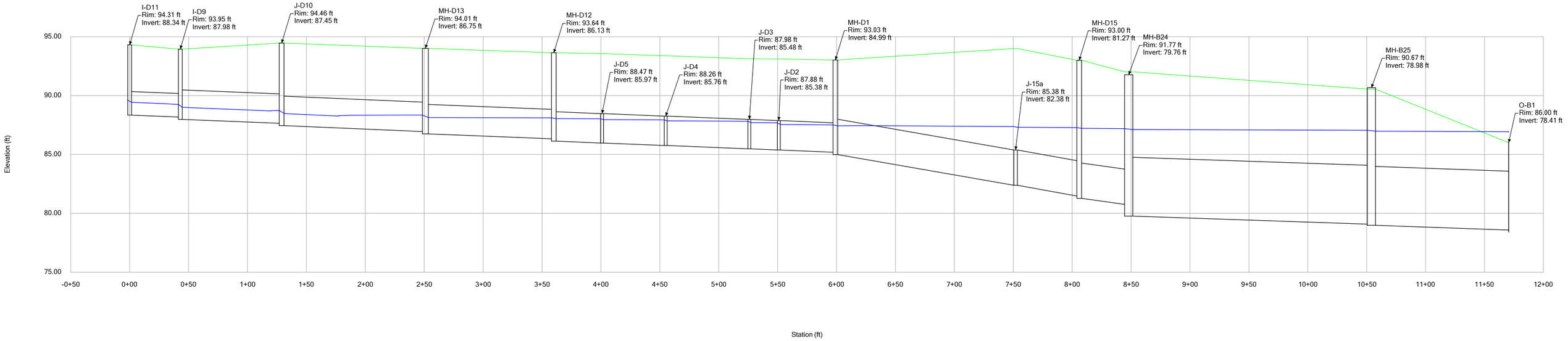


Title: Profile Report
Engineering Profile - Profile - B (2018-03-27 Storm CAD.stsw)
Active Scenario: 10 Year

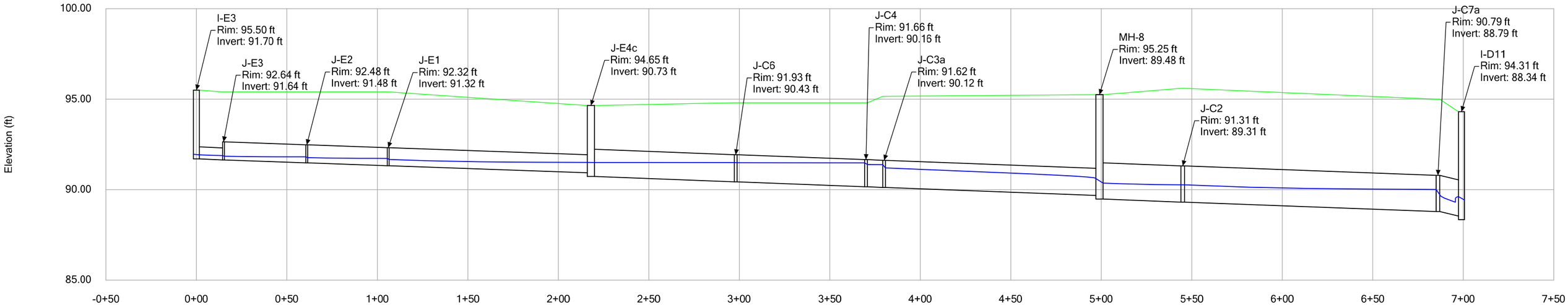


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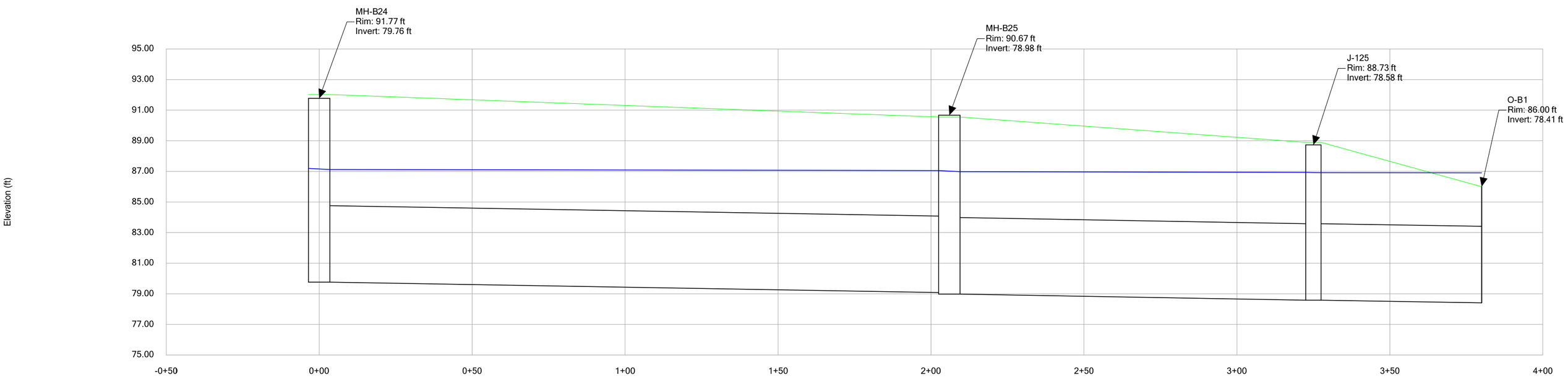
Title: Profile Report
Engineering Profile - Profile - D (2018-03-27 Storm CAD.stsw)
Active Scenario: 10 Year



Title: Profile Report
Engineering Profile - Profile - E (2018-03-27 Storm CAD.stsw)
Active Scenario: 10 Year



Title: Profile Report
Engineering Profile - Profile - G (2018-03-27 Storm CAD.stsw)
Active Scenario: 10 Year



Title: FlexTable: Conduit Table

Active Scenario: 100 Year

Label	Start Node	Stop Node	Diameter (in)	Length (Unified) (ft)	Flow (ft³/s)	Velocity (ft/s)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Invert (Start) (ft)	Invert (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
P-F1	I-F1	O-F1	12.0	16.0	4.40	5.60	93.54	95.00	91.00	90.50	94.34	94.13
P-E2	I-E2	J-E2	8.0	15.0	0.30	0.86	95.50	95.40	91.70	91.48	92.89	92.88
P-E1	I-E1	J-E1	8.0	15.0	0.30	0.86	95.50	95.40	91.70	91.32	92.88	92.87
P-E4a	J-E2	J-E1	12.0	45.0	0.60	0.76	95.40	95.40	91.48	91.32	92.88	92.87
P-E3	I-E3	J-E3	8.0	15.0	0.30	0.86	95.50	95.40	91.70	91.64	92.90	92.89
P-E4	J-E3	J-E2	12.0	46.0	0.30	0.38	95.40	95.40	91.64	91.48	92.89	92.88
P-B17a	J-B17	MH-B25	18.0	86.0	7.60	4.30	91.50	90.55	83.01	80.73	87.72	87.34
P-B26	MH-B25	J-125	60.0	119.0	88.70	4.52	90.55	88.90	78.98	78.58	87.15	87.03
P-B25	MH-B24	MH-B25	60.0	206.0	81.10	4.13	92.02	90.55	79.76	79.08	87.51	87.34
P-B24a	J-B16a	MH-B24	42.0	42.0	53.60	5.57	92.75	92.02	81.31	80.51	87.80	87.70
P-B16	I-B16	J-B16	8.0	13.0	1.50	14.77	94.04	93.30	91.20	88.21	91.77	88.95
P-B16a	J-B16	J-B16a	8.0	25.0	1.50	14.54	93.30	92.75	88.21	82.72	88.78	88.09
P-B17	I-B17	J-B17	18.0	75.0	7.60	4.30	90.15	91.50	84.96	83.01	88.20	87.87
P-D15	MH-D15	MH-B24	36.0	42.0	27.50	3.89	93.00	92.02	81.27	80.76	87.76	87.70
P-D13	MH-D13	MH-D12	30.0	109.0	17.40	3.54	94.01	93.64	86.75	86.33	90.07	89.90
P-D14	J-D10	MH-D13	30.0	122.0	14.80	3.02	94.46	94.01	87.45	86.95	90.36	90.22
P-D9	I-D9	J-D10	30.0	86.0	14.50	2.95	93.95	94.46	87.98	87.65	90.54	90.44
P-D8	I-D11	I-D9	24.0	43.0	13.00	4.14	94.31	93.95	88.34	88.18	90.74	90.62
P-D6	I-D6	J-D6	12.0	33.0	1.50	7.33	94.52	94.25	90.90	89.71	91.42	90.59
P-D6a	J-D6	MH-D13	12.0	61.0	2.60	8.52	94.25	94.01	89.71	87.52	90.40	90.22
P-D7	I-D7	J-D6	10.0	28.0	1.10	3.09	93.55	94.25	89.83	89.71	90.65	90.59
P-D10	I-D10	J-D10	8.0	47.0	0.30	5.77	94.50	94.46	91.20	88.37	91.45	90.44
P-D4	I-D4	J-D4	10.0	28.0	1.70	13.35	94.21	93.38	90.40	85.76	90.99	89.52
P-D2	I-D2	J-D2	10.0	28.0	1.70	13.73	93.94	93.11	90.40	85.38	90.99	88.92
P-D12a	J-D3	J-D2	30.0	25.0	24.80	5.05	93.13	93.11	85.48	85.38	88.99	88.92
P-D12b	J-D4	J-D3	30.0	71.0	19.80	4.03	93.38	93.13	85.76	85.48	89.37	89.23
P-D12c	J-D5	J-D4	30.0	54.0	18.10	3.69	93.56	93.38	85.97	85.76	89.61	89.52
P-D12d	MH-D12	J-D5	30.0	41.0	17.40	3.54	93.64	93.56	86.13	85.97	89.80	89.74
P-D5	I-D5	J-D5	8.0	28.0	0.70	10.85	94.26	93.56	91.00	85.97	91.39	89.74
P-D1	I-D1	MH-D1	8.0	28.0	0.70	10.59	94.22	93.03	91.00	86.32	91.39	88.47
P-D12	J-D2	MH-D1	30.0	48.0	26.50	5.40	93.11	93.03	85.38	85.19	88.64	88.47
P-D11a	MH-D1	J-15a	36.0	153.0	27.20	3.85	93.03	94.00	84.99	82.38	88.34	88.12
P-D11	J-15a	MH-D15	36.0	54.0	27.50	3.89	94.00	93.00	82.38	81.47	87.98	87.90
P-B15	I-B15	J-B15	10.0	25.0	0.30	8.25	94.44	94.50	90.90	86.38	91.14	88.12
P-15a	J-B15	J-15a	10.0	22.0	0.30	0.55	94.50	94.00	86.38	82.38	88.12	88.12
P-C7	J-C7a	I-D11	24.0	13.0	10.40	3.31	95.00	94.31	88.79	88.54	90.90	90.87
P-C6	I-C6	J-C6	8.0	13.0	1.40	4.01	94.80	94.80	90.80	90.43	92.93	92.79
P-C8a	J-C4	J-C3a	18.0	10.0	7.50	4.24	94.80	95.16	90.16	90.12	92.57	92.53
P-C4	I-C4	J-C4	18.0	13.0	5.20	2.94	94.80	94.80	90.80	90.16	92.77	92.74
P-C3	I-C3	J-C3	10.0	10.0	1.30	2.38	95.50	94.50	91.50	91.41	92.99	92.96
P-C3a	J-C3	J-C3a	10.0	49.0	1.90	3.48	94.50	95.16	91.41	90.12	92.84	92.53
P-C5	I-C5	J-C5a	8.0	10.0	0.60	1.72	95.50	95.00	92.40	92.25	93.14	93.12
P-C5a	J-C5a	J-C3	8.0	58.0	0.60	1.72	95.00	94.50	92.25	91.41	93.08	92.96
P-C8b	J-C6	J-C4	18.0	72.0	2.30	1.30	94.80	94.80	90.43	90.16	92.77	92.74
P-C8c	J-E4c	J-C6	18.0	80.0	0.90	0.51	94.65	94.80	90.73	90.43	92.79	92.79
P-C8	J-C3a	MH-8	18.0	119.0	9.40	5.32	95.16	95.25	90.12	89.68	92.27	91.45
P-C7b	MH-8	J-C2	24.0	46.0	9.40	5.01	95.25	95.60	89.48	89.31	91.33	91.28
P-C7a	J-C2	J-C7a	24.0	141.0	10.40	5.12	95.60	95.00	89.31	88.79	91.28	91.03
P-C1	I-C1	J-C1	8.0	8.0	0.30	6.69	95.50	95.26	91.70	90.97	91.95	91.62
P-C2	I-C2	J-C1	8.0	7.0	0.70	5.92	95.26	95.26	91.20	90.97	91.59	91.62
P-C2a	J-C1	J-C2	8.0	47.0	1.00	6.69	95.26	95.60	90.97	89.31	91.52	91.28
P-E4b	J-E1	J-E4c	12.0	112.0	0.90	1.15	95.40	94.65	91.32	90.93	92.86	92.79
P-B1	I-B1	MH-B1	18.0	29.0	3.40	1.92	93.50	94.00	88.60	88.51	94.03	94.00
P-B2	I-B2	MH-B1	10.0	103.0	1.50	2.75	94.50	94.00	91.40	88.88	94.41	94.00
P-F11	I-B11	J-B11	18.0	49.0	2.90	1.64	94.00	94.36	87.94	87.56	92.58	92.55

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Title: FlexTable: Conduit Table

Active Scenario: 100 Year

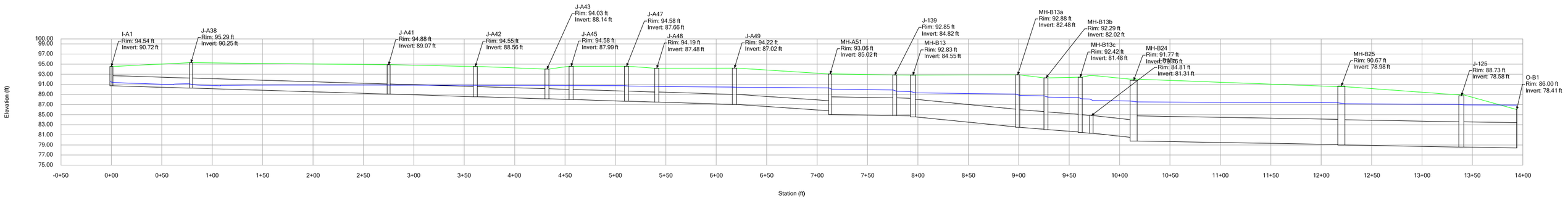
Label	Start Node	Stop Node	Diameter (in)	Length (Unified) (ft)	Flow (ft³/s)	Velocity (ft/s)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Invert (Start) (ft)	Invert (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
P-C10	I-C1	J-B7	18.0	75.0	6.10	3.45	94.94	93.46	87.93	86.88	93.45	93.23
P-B21d	J-B11	MH-B21	36.0	43.0	38.70	5.47	94.36	94.46	86.56	86.42	92.27	92.14
P-B6	I-B19	MH-B6	36.0	7.0	2.10	0.30	92.43	93.40	87.70	87.62	93.40	93.40
P-B20	MH-B4	MH-B6	30.0	91.0	23.70	4.83	93.20	93.40	87.81	87.52	93.66	93.40
P-B5	I-B5	I-B19	24.0	25.0	1.70	0.54	92.43	92.43	88.03	87.94	92.43	92.43
P-B21	MH-B6	J-B8	36.0	52.0	25.80	3.65	93.40	93.43	87.42	87.24	93.50	93.43
P-B1b	J-B3	MH-B4	18.0	49.0	13.10	7.41	92.90	93.20	88.07	87.91	93.85	93.20
P-B21a	J-B8	J-B7	36.0	110.0	28.20	3.99	93.43	93.46	87.24	86.88	93.40	93.23
P-B21b	J-B7	J-B9	36.0	36.0	34.30	4.85	93.46	94.61	86.88	86.76	93.01	92.93
P-B21c	J-B9	J-B11	36.0	58.0	35.80	5.06	94.61	94.36	86.76	86.56	92.69	92.55
P-B9	I-B9	J-B9	10.0	96.0	1.50	2.75	94.59	94.61	91.40	87.92	93.31	92.93
P-B22	MH-B21	J-B12	36.0	74.0	38.70	5.47	94.46	93.97	86.22	85.98	91.86	91.65
P-B12	I-B12	J-B12	8.0	61.0	0.30	6.18	94.42	93.97	91.70	87.23	91.95	91.65
P-B1a	MH-B1	J-B3	18.0	130.0	4.90	2.77	94.00	92.90	88.51	88.07	94.60	94.36
P-B8	I-B8	J-B8a	10.0	8.0	0.70	1.28	94.24	94.50	91.50	90.72	94.00	93.99
P-B8a	J-B8a	J-B8	10.0	37.0	2.40	4.40	94.50	93.43	90.72	88.49	93.81	93.43
P-B7	I-B7	J-B7a	10.0	8.0	1.70	3.12	93.83	94.00	90.90	90.87	94.34	94.30
P-B7a	J-B7a	J-B8a	10.0	46.0	1.70	3.12	94.00	94.50	90.87	90.72	94.22	93.99
P-F2	I-F2	O-F2	12.0	177.0	1.60	2.04	94.30	94.30	91.08	90.50	94.43	94.13
P-H1a	I-H1	J-H2	18.0	54.0	4.90	2.77	95.53	96.05	90.28	90.11	94.69	94.59
P-H1b	J-H2	O-H1	18.0	154.0	4.90	2.77	96.05	95.00	90.11	89.65	94.59	94.30
P-H2	I-H2	J-H2	12.0	18.0	0.00	0.00	95.65	96.05	90.54	90.11	94.59	94.59
P-B22a	J-B12	J-B13	36.0	119.0	39.00	5.52	93.97	93.75	85.98	85.58	91.37	91.02
P-B22c	J-B13	MH-B22	36.0	35.0	41.90	5.93	93.75	93.68	85.58	85.46	90.69	90.58
P-B22b	I-B14	J-B13	12.0	33.0	2.90	3.69	94.00	93.75	85.75	85.58	91.24	91.02
P-239	I-B18	MH-B4	24.0	39.0	8.90	2.83	93.35	93.20	88.85	88.07	93.26	93.20
P-240	J-125	O-B1	60.0	55.0	68.70	3.50	88.90	86.00	78.58	78.41	86.94	86.90
P-242	J-125	O-5	36.0	31.0	20.00	0.00	88.90	86.00	78.58	78.30	80.02	79.52
P-243	I-D3	J-D3	12.0	64.0	5.00	6.37	92.00	93.13	88.26	85.48	90.49	89.23
P-A36	I-A1	J-A38	24.0	79.0	3.78	4.70	94.54	95.29	90.72	90.25	91.40	91.10
P-A39	J-A38	J-A41	24.0	196.0	3.99	4.79	95.29	94.88	90.25	89.07	90.95	90.87
P-A42	J-A41	J-A42	24.0	86.0	4.20	4.83	94.88	94.55	89.07	88.56	90.85	90.83
P-A43	J-A42	J-A43	24.0	71.0	4.20	1.34	94.55	94.03	88.56	88.14	90.81	90.79
P-A44	J-A43	J-A45	24.0	24.0	4.20	1.34	94.03	94.58	88.14	87.99	90.77	90.77
P-A46	J-A45	J-A47	24.0	55.0	6.30	2.01	94.58	94.58	87.99	87.66	90.77	90.73
P-A48	J-A47	J-A48	24.0	30.0	8.40	2.67	94.58	94.19	87.66	87.48	90.66	90.63
P-A49	J-A48	J-A49	24.0	77.0	8.40	2.67	94.19	94.22	87.48	87.02	90.56	90.47
P-B22d	MH-B22	MH-A51	42.0	73.0	41.90	4.35	93.68	93.06	85.26	84.75	90.40	90.29
P-A51	J-A49	MH-A51	24.0	95.0	8.40	2.67	94.22	93.06	87.02	85.77	90.40	90.29
P-A37	I-A2	J-A38	8.0	3.0	0.00	0.00	91.75	95.29	91.00	90.25	91.10	91.10
P-A38	I-A3	J-A38	8.0	14.0	0.21	3.38	91.25	95.29	90.50	90.25	91.11	91.10
P-A40	I-A4	J-A41	8.0	13.0	0.00	0.00	91.75	94.88	91.00	89.74	91.00	90.87
P-A41	I-A5	J-A41	8.0	25.0	0.21	4.08	91.25	94.88	90.50	89.74	90.86	90.87
P-A45	I-A6	J-A45	8.0	22.0	2.10	6.02	91.25	94.58	90.50	88.66	91.33	90.77
P-A47	I-A7	J-A47	8.0	37.0	2.10	6.02	91.25	94.58	90.50	88.33	91.68	90.73
P-B22j	MH-B13c	J-B16a	42.0	11.0	52.10	5.42	92.42	92.75	81.48	81.31	88.11	88.09
P-B22g	MH-B13	MH-B13a	42.0	104.0	52.10	5.42	92.83	92.88	84.55	82.58	89.31	89.08
P-B22h	MH-B13a	MH-B13b	42.0	28.0	52.10	5.42	92.88	92.29	82.48	82.11	88.80	88.74
P-B22i	MH-B13b	MH-B13c	42.0	34.0	52.10	5.42	92.29	92.42	82.02	81.58	88.46	88.39
P-267	I-B3	I-B6	8.0	14.0	0.70	2.01	93.90	93.05	91.50	89.67	93.09	93.05
P-268	I-B6	J-B3	18.0	42.0	8.20	4.64	93.05	92.90	89.67	88.77	94.58	94.36
P-237	I-B4	MH-B4	10.0	54.0	1.70	3.12	93.55	93.20	90.90	88.41	93.48	93.20
P-B22e	MH-A51	J-139	42.0	64.0	50.30	5.23	93.06	92.85	85.02	84.82	90.04	89.90

Title: FlexTable: Conduit Table

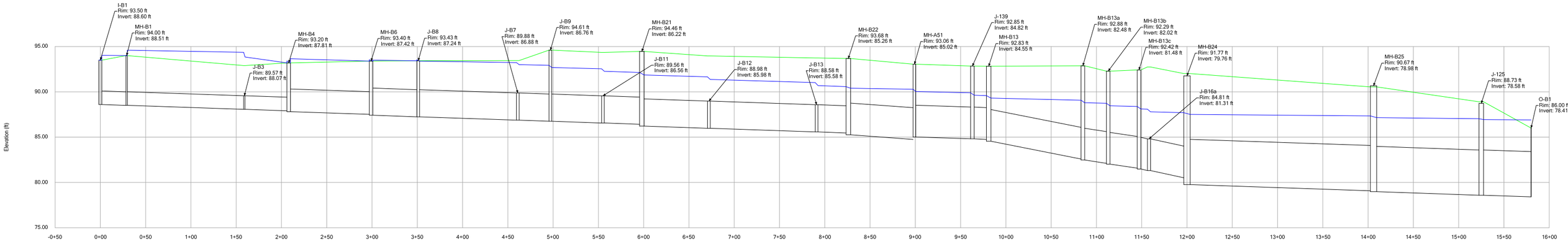
Active Scenario: 100 Year

Label	Start Node	Stop Node	Diameter (in)	Length (Unified) (ft)	Flow (ft^3/s)	Velocity (ft/s)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Invert (Start) (ft)	Invert (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
P-B22f	J-139	MH-B13	42.0	18.0	52.10	5.42	92.85	92.83	84.82	84.75	89.63	89.59
P-B13	I-B13	J-139	18.0	94.0	1.80	1.02	92.92	92.85	87.40	85.82	89.92	89.90
P-C11	I-C1	J-C1	18.0	70.0	5.40	3.06	94.94	95.18	87.93	88.51	93.71	93.56
P-C12	J-C1	I-LAT C1	18.0	67.0	1.80	1.02	95.18	94.61	88.51	89.13	93.83	93.82
P-C13	I-LAT C1	I-LAT C2	18.0	67.0	0.90	0.51	94.61	94.61	89.13	89.62	93.84	93.84
P-C14	J-C1	I-C2	18.0	77.0	3.60	2.04	95.18	94.94	88.51	89.15	93.89	93.82
P-C15	I-C2	I-C3	18.0	30.0	2.70	1.53	94.94	95.00	89.15	89.47	93.95	93.93
P-C16	I-C3	I-C4	18.0	35.0	1.80	1.02	95.00	94.10	89.47	89.76	93.97	93.97
P-C17	I-C4	I-C5	18.0	40.0	0.90	0.51	94.10	94.25	89.76	90.02	93.99	93.98
P-F12	I-B11	J-154	18.0	34.0	2.10	1.19	94.00	96.04	87.20	87.71	92.62	92.60
P-F13	J-154	I-F1A	18.0	16.0	2.10	1.19	96.04	95.10	87.71	87.96	92.63	92.63
P-F14	I-F1A	I-F2	18.0	31.0	2.10	1.19	95.10	95.20	87.96	88.43	92.66	92.65
P-F15	I-F2	I-F3	18.0	40.0	1.40	0.79	95.20	95.35	88.43	89.03	92.67	92.67
P-F16	I-F3	I-F4	18.0	38.0	1.40	0.79	95.35	95.20	89.03	89.60	92.68	92.68
P-F17	I-F4	I-F5	18.0	37.0	0.70	0.40	95.20	95.30	89.60	90.16	92.69	92.69
P-F18	I-F5	I-F6	18.0	39.0	0.70	0.40	95.30	95.20	90.16	90.75	92.69	92.69

Title: Profile Report
Engineering Profile - Profile - A (2018-03-27 Storm CAD.stsw)
Active Scenario: 100 Year

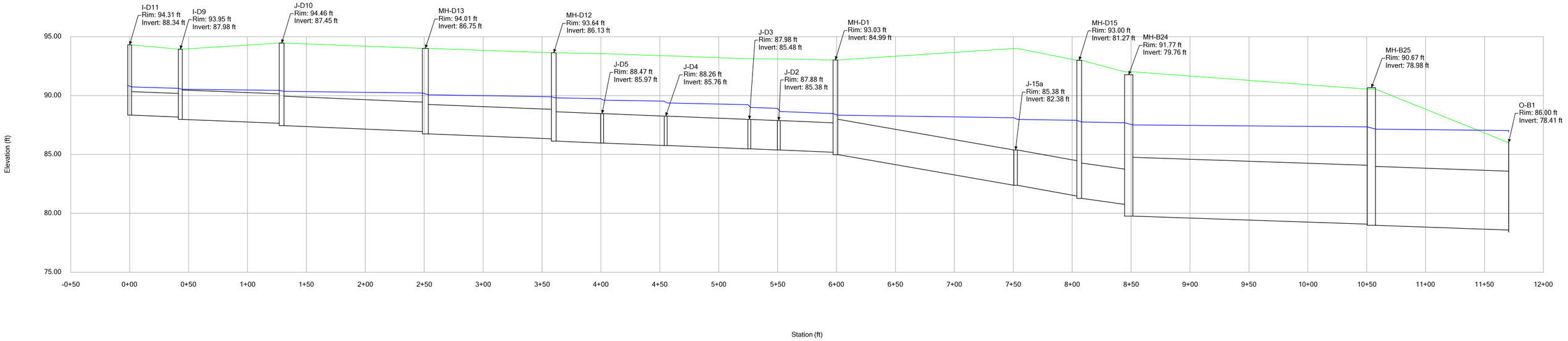


Title: Profile Report
Engineering Profile - Profile - B (2018-03-27 Storm CAD.stsw)
Active Scenario: 100 Year

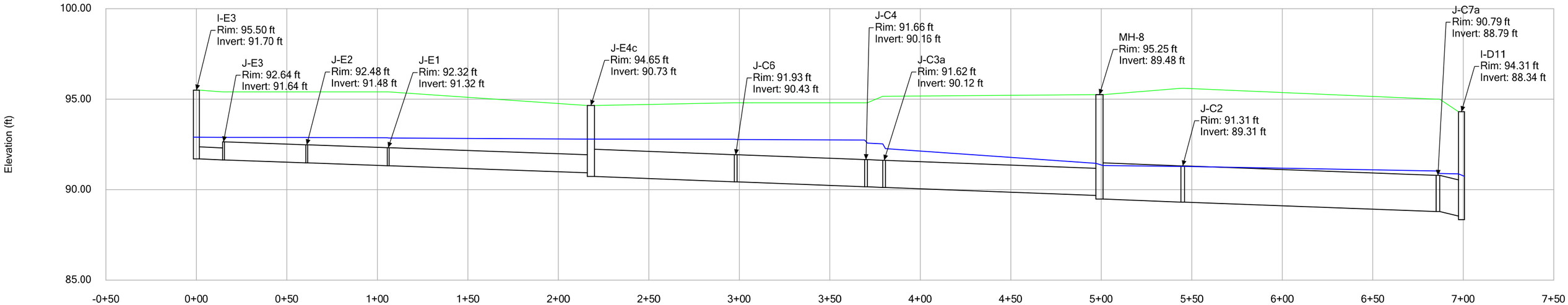


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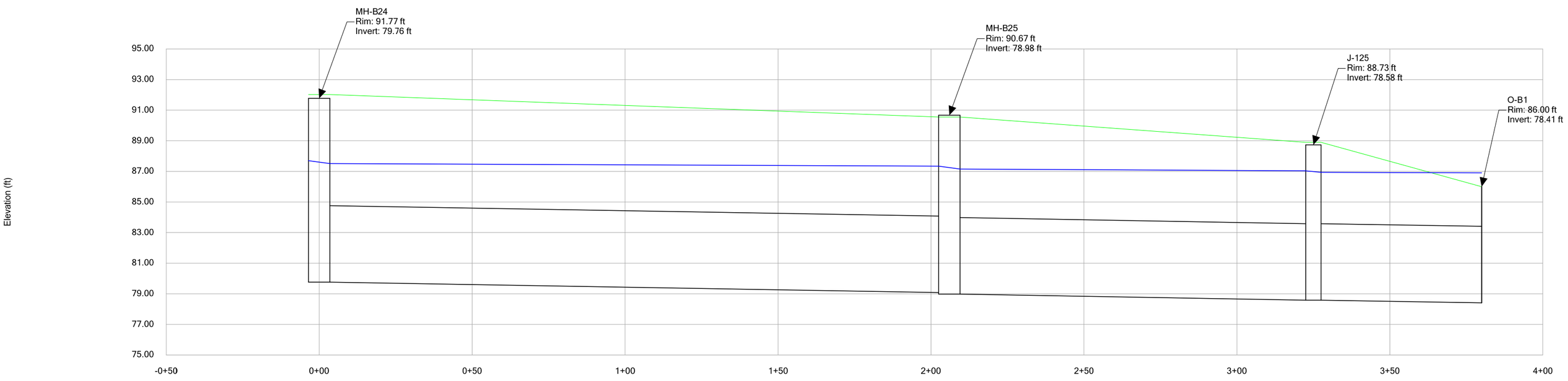
Title: Profile Report
Engineering Profile - Profile - D (2018-03-27 Storm CAD.stsw)
Active Scenario: 100 Year



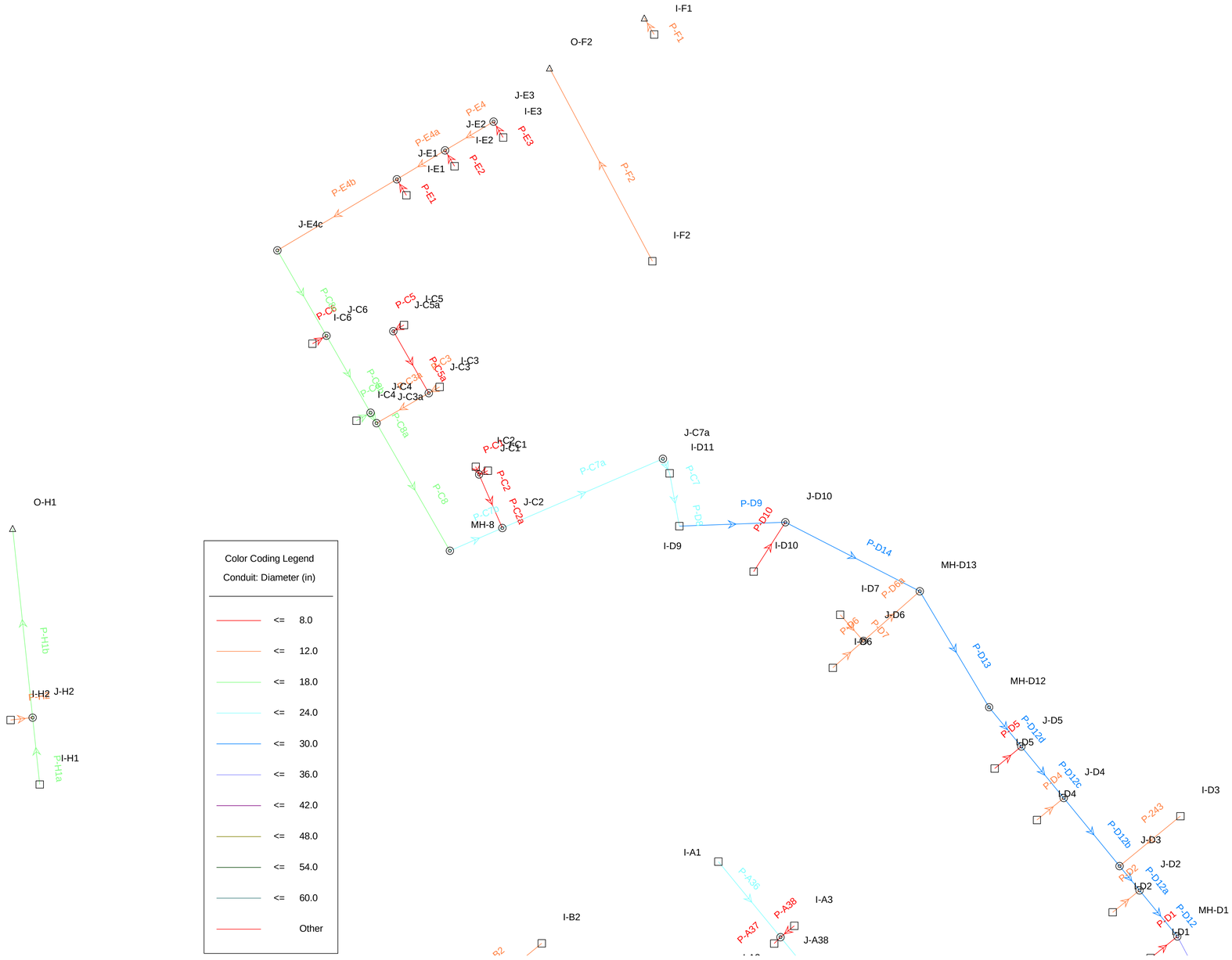
Title: Profile Report
Engineering Profile - Profile - E (2018-03-27 Storm CAD.stsw)
Active Scenario: 100 Year



Title: Profile Report
Engineering Profile - Profile - G (2018-03-27 Storm CAD.stsw)
Active Scenario: 100 Year



Title: Scenario: 10 Year
Active Scenario: 10 Year

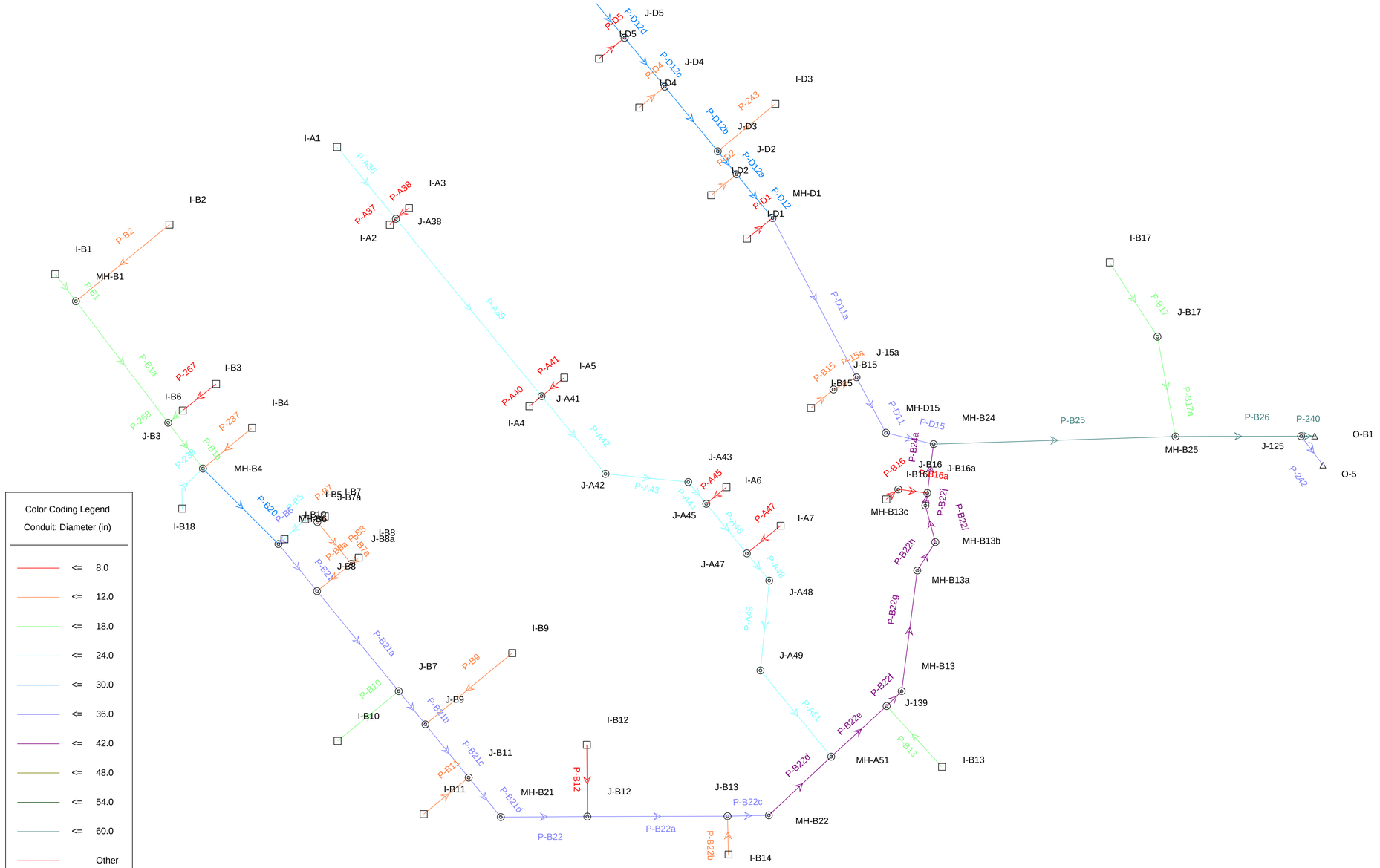


Color Coding Legend

Conduit: Diameter (in)

<=	8.0	
<=	12.0	
<=	18.0	
<=	24.0	
<=	30.0	
<=	36.0	
<=	42.0	
<=	48.0	
<=	54.0	
<=	60.0	
	Other	

Title: Scenario: 10 Year
Active Scenario: 10 Year



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Appendix E: Street Flow and Outlet Channel Calculations

Worksheet for Rolled Curb/Inv Crown

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00400	ft/ft
Normal Depth	0.57	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+02	0.00
0+14	-0.24
0+26	0.00
0+28	0.33

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.013
(0+02, 0.00)	(0+26, 0.00)	0.016
(0+26, 0.00)	(0+28, 0.33)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	37.99	ft^3/s
Elevation Range	-0.24 to 0.33 ft	
Flow Area	11.46	ft^2
Wetted Perimeter	28.04	ft
Hydraulic Radius	0.41	ft
Top Width	27.98	ft

Worksheet for Rolled Curb/Inv Crown

Results

Normal Depth		0.57	ft
Critical Depth		0.54	ft
Critical Slope		0.00488	ft/ft
Velocity		3.32	ft/s
Velocity Head		0.17	ft
Specific Energy		0.74	ft
Froude Number		0.91	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.57	ft
Critical Depth	0.54	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00488	ft/ft

Worksheet for 6-inch Curb/Inv Crown

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00400	ft/ft
Normal Depth	0.78	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.50
0+00	0.00
0+14	-0.28
0+28	0.00
0+28	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.50)	(0+00, 0.00)	0.013
(0+00, 0.00)	(0+28, 0.00)	0.016
(0+28, 0.00)	(0+28, 0.50)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	76.80	ft³/s
Elevation Range	-0.28 to 0.50 ft	
Flow Area	17.92	ft²
Wetted Perimeter	29.01	ft
Hydraulic Radius	0.62	ft
Top Width	28.00	ft

Worksheet for 6-inch Curb/Inv Crown

Results

Normal Depth		0.78	ft
Critical Depth		0.76	ft
Critical Slope		0.00453	ft/ft
Velocity		4.29	ft/s
Velocity Head		0.29	ft
Specific Energy		1.07	ft
Froude Number		0.94	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.78	ft
Critical Depth	0.76	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00453	ft/ft

Worksheet for 6-inch Curb/Reg Crown

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00400	ft/ft
Normal Depth	0.50	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.50
0+00	0.00
0+14	0.28
0+28	0.00
0+28	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.50)	(0+00, 0.00)	0.013
(0+00, 0.00)	(0+28, 0.00)	0.016
(0+28, 0.00)	(0+28, 0.50)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	29.44	ft^3/s
Elevation Range	0.00 to 0.50 ft	
Flow Area	10.08	ft^2
Wetted Perimeter	29.01	ft
Hydraulic Radius	0.35	ft
Top Width	28.00	ft

Worksheet for 6-inch Curb/Reg Crown

Results

Normal Depth		0.50	ft
Critical Depth		0.47	ft
Critical Slope		0.00560	ft/ft
Velocity		2.92	ft/s
Velocity Head		0.13	ft
Specific Energy		0.63	ft
Froude Number		0.86	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.47	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00560	ft/ft

Worksheet for 6-inch/Rolled Curb/Reg Crown

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00400	ft/ft
Normal Depth	0.33	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+02	0.00
0+14	0.24
0+28	0.00
0+28	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.013
(0+02, 0.00)	(0+28, 0.00)	0.016
(0+28, 0.00)	(0+28, 0.50)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	11.96	ft^3/s
Elevation Range	0.00 to 0.50 ft	
Flow Area	5.79	ft^2
Wetted Perimeter	28.36	ft
Hydraulic Radius	0.20	ft
Top Width	28.00	ft

Worksheet for 6-inch/Rolled Curb/Reg Crown

Results

Normal Depth		0.33	ft
Critical Depth		0.30	ft
Critical Slope		0.00653	ft/ft
Velocity		2.07	ft/s
Velocity Head		0.07	ft
Specific Energy		0.40	ft
Froude Number		0.80	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.33	ft
Critical Depth	0.30	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00653	ft/ft

Worksheet for 6-inch/Rolled Curb/Inv Crown

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00400	ft/ft
Normal Depth	0.57	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+02	0.00
0+14	-0.24
0+28	0.00
0+28	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.013
(0+02, 0.00)	(0+28, 0.00)	0.016
(0+28, 0.00)	(0+28, 0.50)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	40.47	ft^3/s
Elevation Range	-0.24 to 0.50 ft	
Flow Area	12.03	ft^2
Wetted Perimeter	28.36	ft
Hydraulic Radius	0.42	ft
Top Width	28.00	ft

Worksheet for 6-inch/Rolled Curb/Inv Crown

Results

Normal Depth		0.57	ft
Critical Depth		0.54	ft
Critical Slope		0.00498	ft/ft
Velocity		3.36	ft/s
Velocity Head		0.18	ft
Specific Energy		0.75	ft
Froude Number		0.90	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.57	ft
Critical Depth	0.54	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00498	ft/ft

Worksheet for Rolled Curb/Reg Crown/1% X-slope

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00400	ft/ft
Normal Depth	0.33	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+02	0.00
0+14	0.12
0+26	0.00
0+28	0.33

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.013
(0+02, 0.00)	(0+26, 0.00)	0.016
(0+26, 0.00)	(0+28, 0.33)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	17.27	ft^3/s
Elevation Range	0.00 to 0.33 ft	
Flow Area	7.14	ft^2
Wetted Perimeter	28.04	ft
Hydraulic Radius	0.25	ft
Top Width	27.98	ft

Worksheet for Rolled Curb/Reg Crown/1% X-slope

Results

Normal Depth		0.33	ft
Critical Depth		0.30	ft
Critical Slope		0.00581	ft/ft
Velocity		2.42	ft/s
Velocity Head		0.09	ft
Specific Energy		0.42	ft
Froude Number		0.84	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.33	ft
Critical Depth	0.30	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00581	ft/ft

Worksheet for 6-inch Curb/Reg Crown/1% X-slope

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00400	ft/ft
Normal Depth	0.50	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.50
0+00	0.00
0+14	0.14
0+28	0.00
0+28	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.50)	(0+00, 0.00)	0.013
(0+00, 0.00)	(0+28, 0.00)	0.016
(0+28, 0.00)	(0+28, 0.50)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	39.59	ft^3/s
Elevation Range	0.00 to 0.50 ft	
Flow Area	12.04	ft^2
Wetted Perimeter	29.00	ft
Hydraulic Radius	0.42	ft
Top Width	28.00	ft

Worksheet for 6-inch Curb/Reg Crown/1% X-slope

Results

Normal Depth		0.50	ft
Critical Depth		0.47	ft
Critical Slope		0.00524	ft/ft
Velocity		3.29	ft/s
Velocity Head		0.17	ft
Specific Energy		0.67	ft
Froude Number		0.88	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.47	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00524	ft/ft

Worksheet for 6-inch Curb/Rolled Curb/Reg Crown/1% X-slope

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00400	ft/ft
Normal Depth	0.33	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+02	0.00
0+14	0.14
0+28	0.00
0+28	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.013
(0+02, 0.00)	(0+28, 0.00)	0.016
(0+28, 0.00)	(0+28, 0.50)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	16.77	ft^3/s
Elevation Range	0.00 to 0.50 ft	
Flow Area	7.09	ft^2
Wetted Perimeter	28.36	ft
Hydraulic Radius	0.25	ft
Top Width	28.00	ft

Worksheet for 6-inch Curb/Rolled Curb/Reg Crown/1% X-slope

Results

Normal Depth		0.33	ft
Critical Depth		0.30	ft
Critical Slope		0.00606	ft/ft
Velocity		2.36	ft/s
Velocity Head		0.09	ft
Specific Energy		0.42	ft
Froude Number		0.83	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.33	ft
Critical Depth	0.30	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00606	ft/ft

Worksheet for Rolled Curb/Reg Crown

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00400	ft/ft
Normal Depth	0.33	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+02	0.00
0+14	0.24
0+26	0.00
0+28	0.33

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.013
(0+02, 0.00)	(0+26, 0.00)	0.016
(0+26, 0.00)	(0+28, 0.33)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	11.86	ft^3/s
Elevation Range	0.00 to 0.33 ft	
Flow Area	5.70	ft^2
Wetted Perimeter	28.04	ft
Hydraulic Radius	0.20	ft
Top Width	27.98	ft

Worksheet for Rolled Curb/Reg Crown

Results

Normal Depth		0.33	ft
Critical Depth		0.30	ft
Critical Slope		0.00631	ft/ft
Velocity		2.08	ft/s
Velocity Head		0.07	ft
Specific Energy		0.40	ft
Froude Number		0.81	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.33	ft
Critical Depth	0.30	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00631	ft/ft

Worksheet for 6-inch Curb/2% X-slope

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00370	ft/ft
Normal Depth	0.52	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.50
0+00	0.00
0+26	-0.52
0+26	-0.02

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.50)	(0+26, -0.02)	0.016

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	15.35	ft³/s
Elevation Range	-0.52 to 0.50 ft	
Flow Area	6.76	ft²
Wetted Perimeter	26.53	ft
Hydraulic Radius	0.25	ft
Top Width	26.00	ft
Normal Depth	0.52	ft
Critical Depth	0.47	ft
Critical Slope	0.00620	ft/ft

Worksheet for 6-inch Curb/2% X-slope

Results

Velocity		2.27	ft/s
Velocity Head		0.08	ft
Specific Energy		0.60	ft
Froude Number		0.79	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.52	ft
Critical Depth	0.47	ft
Channel Slope	0.00370	ft/ft
Critical Slope	0.00620	ft/ft

Worksheet for Outlet Channel

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00330	ft/ft
Normal Depth	1.40	ft
Bottom Width	17.00	ft

Results

Discharge	176.67	ft^3/s
Flow Area	23.80	ft^2
Wetted Perimeter	19.80	ft
Hydraulic Radius	1.20	ft
Top Width	17.00	ft
Critical Depth	1.50	ft
Critical Slope	0.00267	ft/ft
Velocity	7.42	ft/s
Velocity Head	0.86	ft
Specific Energy	2.26	ft
Froude Number	1.11	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.40	ft
Critical Depth	1.50	ft
Channel Slope	0.00330	ft/ft
Critical Slope	0.00267	ft/ft

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Appendix F: Curb Inlet Sizing

Worksheet for Combination Inlet In Sag - I-B5 (MAG-534, Type 'E')

Project Description

Solve For	Spread

Input Data

Discharge		8.50	ft³/s
Gutter Width		1.42	ft
Gutter Cross Slope		0.06	ft/ft
Road Cross Slope		0.02	ft/ft
Local Depression		1.00	in
Local Depression Width		2.33	ft
Grate Width		1.29	ft
Grate Length		6.76	ft
Grate Type	P-50 mm x 100 mm (P-1-7/8"-4")		
Clogging		50.00	%
Curb Opening Length		5.46	ft
Opening Height		0.50	ft
Curb Throat Type	Horizontal		
Throat Incline Angle		90.00	degrees

Double Grate
Used 50%
clogging factor
Effective grate
width and length

Effective curb length is 6.83 ft. Used 20% clogging factor on curb opening

Options

Calculation Option	Use Both

Results

Spread	17.51	ft
Depth	0.40	ft
Gutter Depression	0.05	ft
Total Depression	0.14	ft
Open Grate Area	3.49	ft²
Active Grate Weir Length	8.05	ft

Worksheet for Combination Inlet In Sag - I-B6 (MAG-534, Type 'E')

Project Description

Solve For	Spread

Input Data

Discharge		3.00	ft³/s
Gutter Width		1.42	ft
Gutter Cross Slope		0.06	ft/ft
Road Cross Slope		0.02	ft/ft
Local Depression		1.00	in
Local Depression Width		2.33	ft
Grate Width		1.29	ft
Grate Length		6.76	ft
Grate Type	P-50 mm x 100 mm (P-1-7/8"-4")		
Clogging		50.00	%
Curb Opening Length		5.46	ft
Opening Height		0.50	ft
Curb Throat Type	Horizontal		
Throat Incline Angle		90.00	degrees

Double Grate Used
50% clogging factor
Effective grate width
and length

Effective curb length
is 6.83 ft. Used 20%
clogging factor on
curb opening

Options

Calculation Option	Use Both

Results

Spread	7.98	ft
Depth	0.21	ft
Gutter Depression	0.05	ft
Total Depression	0.14	ft
Open Grate Area	3.49	ft²
Active Grate Weir Length	8.05	ft

Worksheet for Grate Inlet In Sag - I-D9 (MAG-535, Type 'F')

Project Description

Solve For	Spread

Input Data

Discharge		1.00	ft³/s
Gutter Width		2.00	ft
Gutter Cross Slope		0.06	ft/ft
Road Cross Slope		0.05	ft/ft
Grate Width		2.00	ft
Grate Length		3.42	ft
Local Depression		2.00	in
Local Depression Width		2.00	ft
Grate Type	P-50 mm x 100 mm (P-1-7/8"-4")		
Clogging		50.00	%

Used 50% clogging factor on grate. Effective grate width and length

Results

Spread	3.96	ft
Depth	0.21	ft
Gutter Depression	0.02	ft
Total Depression	0.18	ft
Open Grate Area	2.74	ft²
Active Grate Weir Length	5.42	ft

Worksheet for Grate Inlet In Sag - I-D11 (MAG-535, Type 'F')

Project Description

Solve For	Spread

Input Data

Discharge		2.00	ft³/s
Gutter Width		2.00	ft
Gutter Cross Slope		0.06	ft/ft
Road Cross Slope		0.04	ft/ft
Grate Width		2.00	ft
Grate Length		3.42	ft
Local Depression		2.00	in
Local Depression Width		2.00	ft
Grate Type	P-50 mm x 100 mm (P-1-7/8"-4")		
Clogging		50.00	%

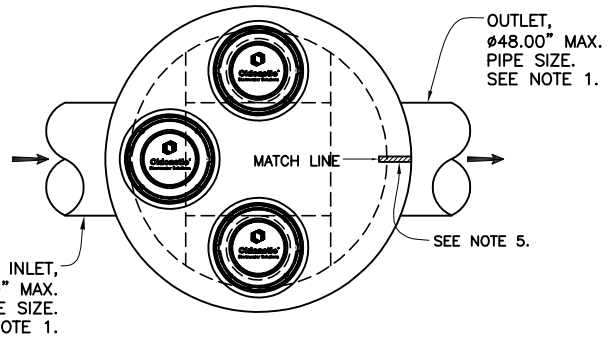
Used 50% clogging factor on grate. Effective grate width and length

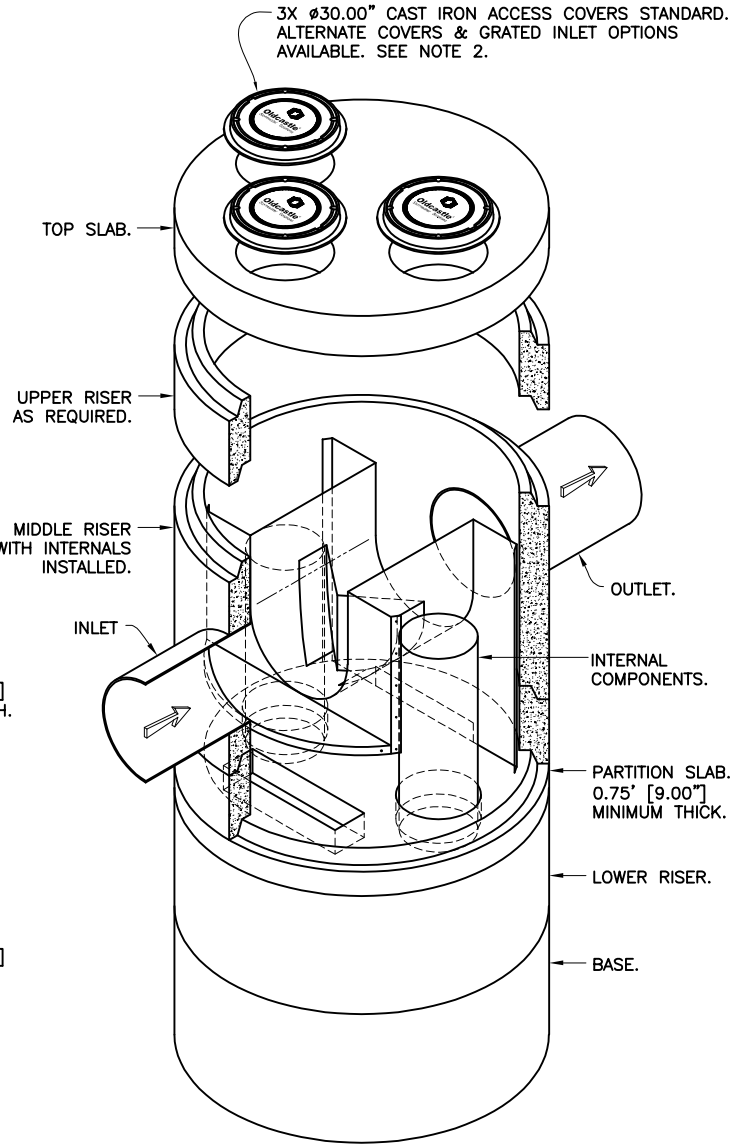
Results

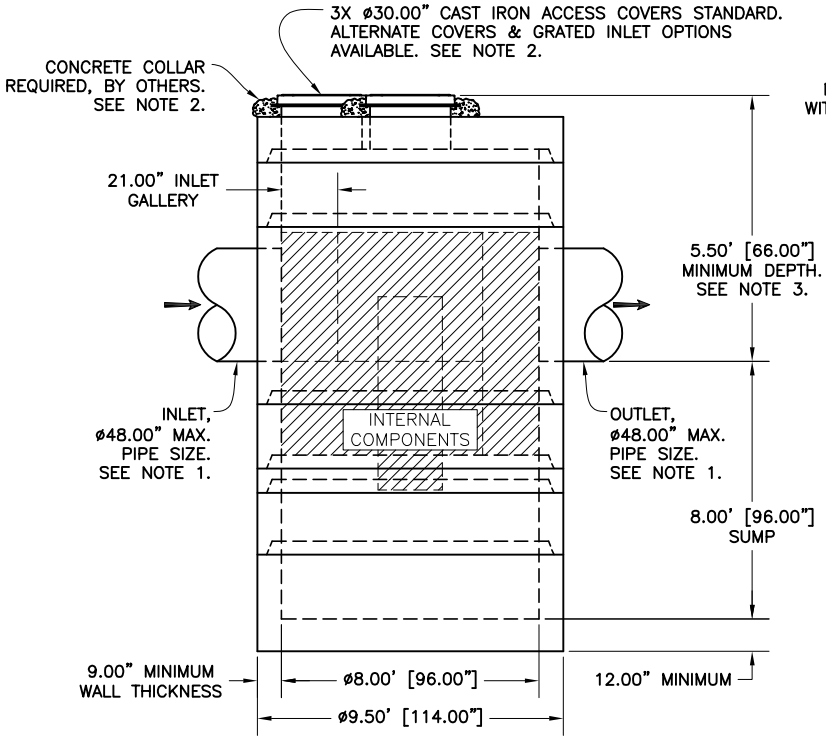
Spread	7.44	ft
Depth	0.31	ft
Gutter Depression	0.05	ft
Total Depression	0.21	ft
Open Grate Area	2.74	ft²
Active Grate Weir Length	5.42	ft

Appendix G: Old Castle Precast Dual-Vortex Separator

DVS-96C







NOTES:

1. STANDARD INLET/OUTLET PIPE CONFIGURATION TO ENTER & EXIT SEPARATOR AT 180°. CUSTOM ANGLED CONFIGURATIONS AVAILABLE UPON REQUEST, SPECIFIC MAXIMUM ANGLES & PIPE SIZES APPLY. CONTACT OLDCASTLE® STORMWATER SOLUTIONS FOR ENGINEERING DETAILS.
2. BOLTED & GASKETED MANHOLE ACCESS COVER ELEVATION MAY BE ADJUSTED TO GRADE. FIELD POURED CONCRETE COLLAR AS REQUIRED, BY OTHERS. INLET GRATES & ALTERNATE COVER OPTIONS AVAILABLE.
3. FOR DEPTHS LESS THAN THE MINIMUM SHOWN CONTACT OLDCASTLE® STORMWATER SOLUTIONS FOR ENGINEERING DESIGN ASSISTANCE.
4. CONCRETE COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM DESIGNATION C478.
5. MATCH LINES PROVIDED TO FACILITATE PROPER ALIGNMENT OF ALL CONCRETE COMPONENTS DURING ASSEMBLY.

Hydrodynamic Separation

DVS-96C

Dual Vortex Separator™

Circular Structure

Oldcastle® Stormwater Solutions
7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

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DRAWING NO.	REV	ECO	DATE	
DVS-96C	D	ECO-0151 SRA 3/30/17	JPR 4/25/11	SHEET 1 OF 1

FloGard® Dual-Vortex Hydrodynamic Separator

Characteristics and Capacities (English)

Model	ID	Depth Below Invert	Treated Flow Capacity[1]			Total Flow Capacity[3]	Max. Pipe Size	Sediment Storage	Oil/ Floatable Storage
	ft	*ft*	*67 µm cfs*	*110 µm cfs*	*Peak[2] cfs*	*cfs*	*in*	*yd³*	*gal*
DVS-36	3	3.75	0.12	0.35	0.50	4	12	0.3	18
DVS-48	4	5.00	0.25	0.75	1.25	9	18	0.7	43
DVS-60	5	6.25	0.45	1.30	2.50	16	24	1.3	83
DVS-72	6	8.25	0.70	2.00	4.25	27	36	2.2	141
DVS-84[4]	7	9.50	1.00	3.00	6.50	40	42	3.5	294
DVS-96	8	10.75	1.40	4.20	9.50	57	48	5.3	337
DVS-120[4]	10	13.50	2.50	7.30	16.80	99	48	9.7	917
DVS-144[4]	12	16.00	3.90	11.60	26.40	154	60	15.5	1825

Characteristics and Capacities (Metric)

Model	ID	Depth Below Invert	Treated Flow Capacity[1]			Total Flow Capacity[3]	Max. Pipe Size	Sediment Storage	Oil/ Floatable Storage
	m	*m*	*67 µm L/s*	*110 µm L/s*	*Peak[2] L/s*	*L/s*	*mm*	*m³*	*L*
DVS-36	0.9	1.14	3.5	10	14	113	300	0.23	68
DVS-48	1.2	1.52	7	21	35	255	450	0.54	163
DVS-60	1.5	1.91	13	37	71	453	600	1.00	314
DVS-72	1.8	2.51	20	57	120	765	900	1.70	534
DVS-84[4]	2.1	2.90	30	85	184	1133	1050	2.70	1113
DVS-96	2.4	3.28	40	120	269	1614	1200	4.00	1276
DVS-120[4]	3.0	4.11	70	205	475	2800	1200	7.40	3471
DVS-144[4]	3.7	4.88	110	330	750	4360	1500	11.90	6908

[1]Treated Flow Capacity is based on 80% removal of suspended sediment with the approximate mean particle size shown. The appropriate flow capacity should be selected based on expected site sediment characteristics.
[2] Maximum flow prior to bypass. Correlates approximately to 80% removal of suspended sediment with a 250 µm particle size mean.
[3] Total design flow to the system should not exceed the Peak Flow Capacity.
[4]Call Kristar representative for availability in your area.

Notes: Systems may be sized based on a water quality flow (i.e. 1-inch design storm) or on net annual sediment load removal depending on local regulatory requirements.
Contact Kristar for the most accurate and cost effective sizing for your project location.

When sizing system based on a water quality flow, the required flow to be treated must be less than or equal to the Treated Flow Capacity for the selected unit.

©2011 Kristar Enterprises, Inc.
360 Sutton Place, Santa Rosa, CA, 95407, (800) 579-8819

Appendix H: Stormwater Storage Waiver

Request for Stormwater Storage Waiver

City of Scottsdale Case Numbers:

___ - PA - ____ ____ - ZN - ____ ____ - UP - ____ ____ - DR - ___ ____ - PP - ____ PC#_____

The applicant/developer must complete and submit this form to the city for processing and obtain approval of waiver request ***before submitting improvement plans***. Denial of the waiver may require the developer to submit a revised site plan to the Development Review Board.

Date 7/02/18 **Project Name** Artesia

Project Location NEC of Scottsdale Road and Indian Bend Road

Applicant Contact Mike Delmarter **Company Name** Kimley-Horn

Phone 602-571-7070 Fax _____ E-mail mike.delmarter@kimley-horn.com

Address 7740 N. 16th Street, Suite 300, Phoenix, AZ 85020

Waiver Criteria

A project must meet at least one of three criteria listed below for the city to consider waiving some or all required stormwater storage. **However, regardless of the criteria, a waiver will only be granted if the applicant can demonstrate that the effect of a waiver will not increase the potential for flooding on any property.** Check the applicable box and provide a signed engineering report and supporting engineering analysis that demonstrate the project meets the criteria and that the effect of a waiver will not increase the potential for flooding on any property.

If the runoff for the project has been included in a storage facility at another location, the applicant must demonstrate that the stormwater storage facility was specifically designed to accommodate runoff from the subject property and that the runoff will be conveyed to this location through an adequately designed conveyance facility.

☑ 1. The development is adjacent to a conveyance facility that an engineering analysis shows is designed and constructed to handle the additional runoff from the site as a result of development.

☐ 2. The development is on a parcel less than one-half acre in size.

☐ 3. Stormwater storage requirements conflict with requirements of the Environmentally Sensitive Lands Ordinance (ESLO).

For a full storage waiver, a conflict with ESLO is limited to:

- Property located in the hillside landform as defined in the city Zoning Ordinance
- Property in the upper desert landform that has a land slope steeper than 5% as defined in the city Zoning Ordinance
- Property within the ESL zoning overlay district where the only viable location for a stormwater storage basin requires blasting

This full waiver only applies to those portions of property meeting one of these three requirements.

Partial waivers are available for projects or portions of properties within the Environmentally Sensitive Lands Zoning Overlay District, not meeting any of the three full waiver criteria above, if post-development peak discharge rates do not exceed pre-development conditions, based on the 10- and 100-year storm events.

By signing below, I certify that the stated project meets the waiver criteria selected above as demonstrated by the attached documentation.

Engineer

7/02/18

Date

Planning, Neighborhood & Transportation Division

7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500 ◆ Fax: 480-312-7781

Request for Stormwater Storage Waiver

City of Scottsdale Case Numbers:
___ - PA - ____ ____ - ZN - ____ ____ - UP - ____ ____ - DR - ___ ____ - PP - ____ PC#_____

CITY STAFF TO COMPLETE THIS PAGE

Project Name _____

Check Appropriate Boxes:

☐ Meets waiver criteria (specify): ☐ 1 ☐ 2 ☐ 3

☐ Recommend approve waiver.

☐ Recommend deny waiver:
- ☐ None of waiver criteria met.
- ☐ Downstream conditions prohibit waiver of any storage.
- ☐ Other:

Explain: _____

_____

☐ Return waiver request:
- ☐ Insufficient data provided.
- ☐ Other: _____

Explain: _____

_____

Recommended Conditions of Waiver:
- ☐ All storage requirements waived.
- ☐ Post-development peak discharge rates do not exceed pre-development conditions.
- ☐ Other:

Explain: _____

_____

☐ **Waiver approved per above conditions.**

☐ **Waiver denied.**

_____ _____

Floodplain Administrator or Designee Date

Planning, Neighborhood & Transportation Division
7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500 ◆ Fax: 480-312-7781

Request for Stormwater Storage Waiver

City of Scottsdale Case Numbers:

___ - PA - ____ ____ - ZN - ____ ____ - UP - ____ ____ - DR - ___ ____ - PP - ____ PC#_____

In-Lieu Fee and In-Kind Contributions

In-lieu fees are only applicable to projects where post-development peak discharge rates exceed pre-development levels, based on the 10- and 100-year storm events. If the city grants a waiver, the developer is required to calculate and contribute an in-lieu fee based on what it would cost the city to provide a storage basin, sized as described below, including costs such as land acquisition, construction, landscaping, design, construction management, and maintenance over a 75-year design life. The fee for this cost is $1.87 per cubic foot of stormwater storage for a virtual storage basin designed to mitigate the increase in runoff associated with the 100-year/2-hour storm event. The applicant may submit site-specific in-lieu fee calculations subject to the Floodplain Administrator's approval.

The Floodplain Administrator considers in-kind contributions on a case-by-case basis. An in-kind contribution can serve as part of or instead of the calculated in-lieu fee. In-kind contributions must be stormwater related and must constitute a public benefit. In-lieu fees and in-kind contributions are subject to the approval of the Floodplain Administrator or designee.

Project Name Artesia

The waived stormwater storage volume is calculated using a simplified approach as follows:

$V = \Delta CRA$; where

V = stormwater storage volume required, in cubic feet,
ΔC = increase in weighted average runoff coefficient over disturbed area ($C_{post} - C_{pre}$),
R = 100-year/2-hour precipitation depth, in feet (DSPM, Appendix 4-1D, page 11), and
A = area of disturbed ground, in square feet

Furthermore,

$V_w = V - V_p$; where
V_w = volume waived,
V = volume required, and
V_p = volume provided

R = 2.19
ΔC= 0.0265
A = 1,782,562 SF
V = 8,626 CF
V_p= 0
V_w= 8,626 CF

☑ An in-lieu fee will be paid, based on the following calculations and supporting documentation:
In-lieu fee ($) = V_w (cu. ft.) x $1.87 per cubic foot = $16,131.52

☐ An in-kind contribution will be made, as follows:

_____
_____
_____

☐ No in-lieu fee is required. Reason:

_____
_____

Approved by:

_____ _____
Floodplain Administrator or Designee Date

Planning, Neighborhood & Transportation Division
7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500 ◆ Fax: 480-312-7781

Kimley»Horn

Appendix I: Corps of Engineers – Jurisdictional Limits of Water Letter 11/3/2004

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3636 NORTH CENTRAL AVENUE, SUITE 900
PHOENIX, ARIZONA 85012-1939

REPLY TO
Office of the Chief
Regulatory Branch

November 3, 2004

Ms. Marcie Martin
Kimley-Horn and Associates, Inc.
7878 North 16th Street, Suite 300
Phoenix, Arizona 85020

File Number: 2004-01777-AP

Dear Ms. Martin:

Reference is made to your letter of August 27, 2004 in which a Clean Water Act Section 404 jurisdictional delineation was requested by the property owner (Mr. Jeff Siebert of Starpointe-Radisson) for their 43-acre parcel of land located east of Scottsdale Road and north of Indian Bend Road (Section 2, T2N, R4E), Scottsdale, Maricopa County, Arizona.

The enclosed aerial photograph delineates the waters of the United States consisting of Mummy Wash and an unnamed tributary wash that are regulated by Section 404 of the Clean Water Act. This approved jurisdictional determination will remain in effect for five years from the date of this letter unless an unusual flood event occurs. After this five-year period or after an unusual flood event alters stream conditions, the Corps of Engineers reserves the authority to retain the original jurisdictional limits or to establish new jurisdictional limits as conditions warrant.

Each water of the United States herein delineated is a water that is tributary to an interstate water. The Section 404 jurisdictional limit for a water of the United States is defined at 33 CFR Part 328. The jurisdictional limit for a non-tidal water of the United States is determined by the jurisdictional wetland boundary and/or the ordinary high water mark. The jurisdictional limit of a wetland is determined in accordance with the Corps of Engineers 1987 Wetlands Delineation Manual. Otherwise, presence of the indicators stated in the definition of ordinary high mark (33CFR 328.3(e)) are used to establish the jurisdictional limit of a water of the United States. The basis of this jurisdictional determination is shown on the enclosed checklist.

Any discharge of dredged or fill material within the designated jurisdictional area requires a Section 404 permit from the Corps of Engineers. The Corps of Engineers emphasizes avoidance of the delineated jurisdictional area. Please review this delineation and evaluate your proposed activity to ensure that avoidance of the jurisdictional area is given full consideration in your design. If all discharges of dredged or fill material occur outside the designated jurisdictional area, no Section 404 permit is required. If avoidance is not practicable, please reference File Number 2004-01777-AP when submitting your Section 404 permit application to the Corps of Engineers. Please be advised that your application needs to substantiate that avoidance of designated jurisdictional areas is not practicable and substantiate that impacts to waters of the United States have been minimized.

Furthermore, you are hereby advised that the Corps of Engineers has established an Administrative Appeal Process for jurisdictional determinations which is fully described at 33 CFR Part 331. The Administrative Appeal Process for jurisdictional determinations is diagrammed on the enclosed Appendix C. If you decide not to accept this approved jurisdictional determination and wish to provide new information please send the information to this office. If you do not supply additional information you may appeal this approved jurisdictional determination by completing the attached "Notification of Administrative Appeal Options and Process and Request for Appeal" form and submitting it directly to the Appeal Review Officer at the address provided on the form.

The receipt of your letter is appreciated. If you have questions, please contact Ann Palaruan at (602) 640-5385 x 227.

Sincerely,

Cindy Lester

Cindy Lester P.E.
Chief, Arizona Section
Regulatory Branch

Enclosure(s)

Copy Furnished:
(Without Enclosures)

Mr. Jeff Seibert
Starpointe-Radisson Properties
7025 North Scottsdale Road, Suite 310
Scottsdale, Arizona 85253

Basis of Jurisdictional Determination

Date of desk determination: November 3, 2004

Supporting documentation:

__X__ Applicant's proposed jurisdictional determination
_____ Wetland delineation following 1987 Corps Wetland Delineation Manual
__X__ Aerial photography interpretation
__X__ Ground photographs
_____ Topographic map interpretation
__X__ Review of historical records and/or aerial photography
__X__ Comparison of previously accepted delineations of the area
__X__ USGS map(s)
_____ Flow data (drainage reports, modeled flows, USGS gage data, or other sources)
_____ Floodplain maps
_____ Soil Maps
_____ Environmental Assessment/ Environmental Impact Statement
_____ National Wetland Inventory Maps
__X__ Staff knowledge of area
_____ Biological resource reports
_____ Other

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Starpointe-Radisson Properties, Inc.	File Number: 2004-01777-AP	Date: November 3, 2004

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I: The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the for m to the DISTRICT engineer. Your objections must be received by the DISTRICT engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the DISTRICT engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (a ddress on reverse). This form must be received by the DIVISION (not district) engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse) engineer. This form must be received by the DIVISION (not district) engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse) engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL OR PROFFERED PERMIT OR PERMIT DENIAL OR APPROVED JD TO DISTRICT ENGINEER FOR THE PURPOSE OF OBJECTING TO AN INITIAL PROFFERED PERMIT OR ANY

INFORMATION FOR APPEAL OF APPROVED JURISDICTIONAL DETERMINATION TO DISTRICT ENGINEER

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

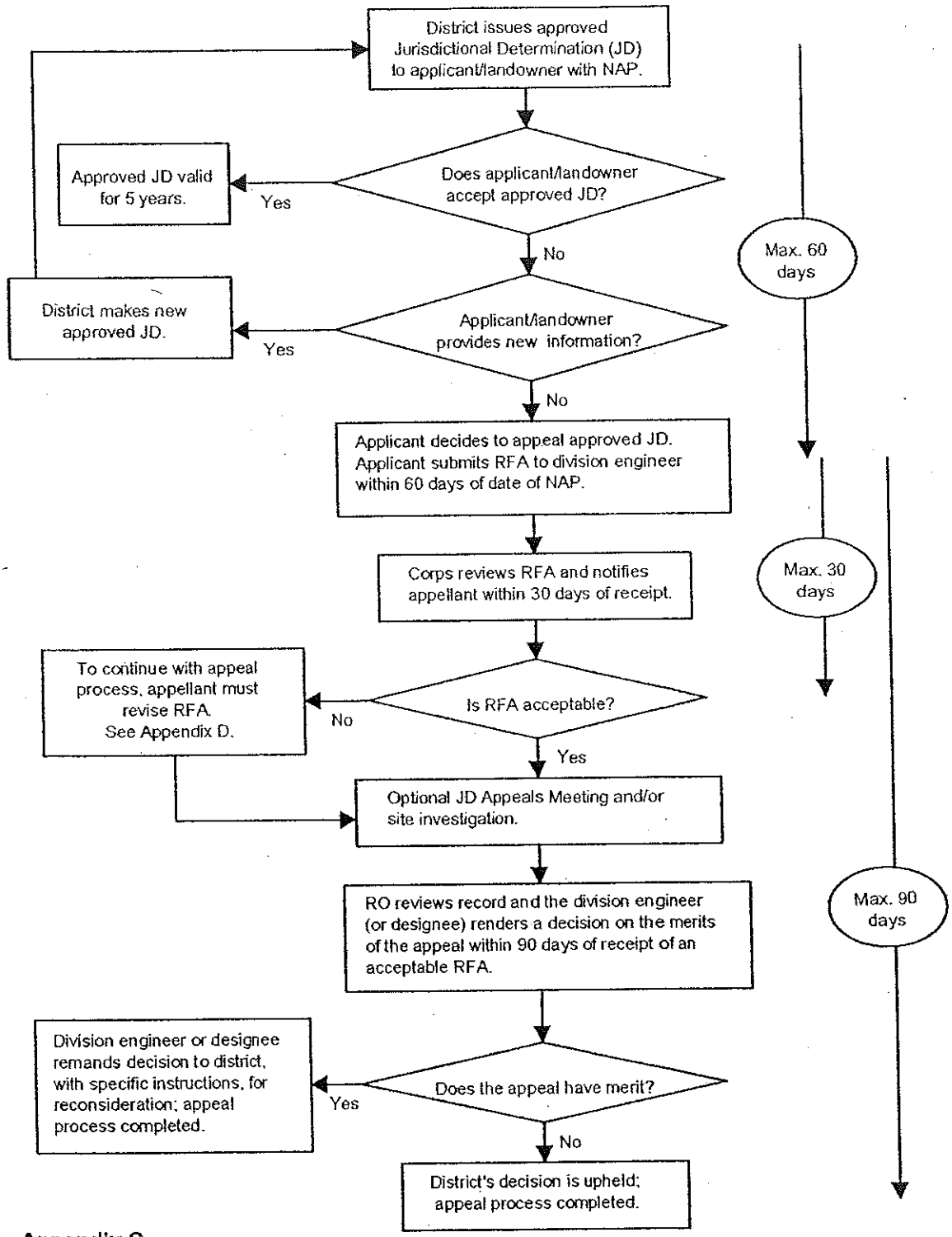
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: DISTRICT ENGINEER Los Angeles District, Corps of Engineers Attn: Chief, Regulatory Branch PO Box 532711 Los Angeles, CA 90053 (213-452-3425)	If you only have questions regarding the appeal process you may also contact: DIVISION ENGINEER Army Engineer Division, South Pacific, CESPD-CM-O Attn: Doug Pomeroy Administrative Appeal Review Officer 333 Market Street San Francisco, CA 94015 (415-977-8035)

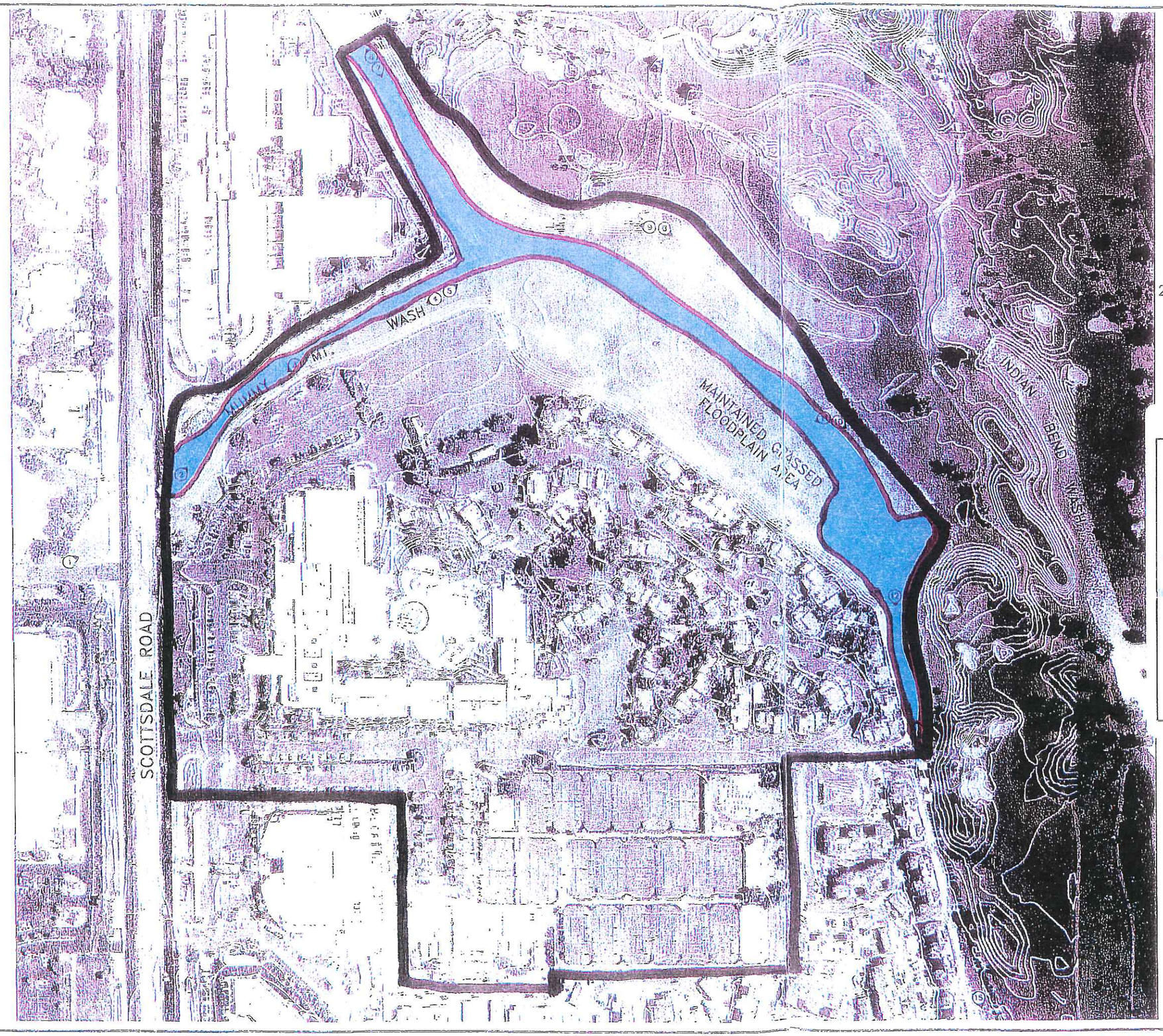
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C



N

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)

SECTION 404 JURISDICTIONAL DELINEATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. 2004-01777-AP

------Boundary of area surveyed for jurisdictional waters of the United States

------Ordinary High Water Mark

------Waters of the United States

------Wetlands (If legend is blank no wetlands occur with survey area.)

N Site Visit(Y/N) Date:

1"=200' Scale June 04 Date of Photograph

Ann Palaviccini Corps Project Manager

THIS PROJECT IS LOCATED IN THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST (GILA AND SALT RIVER BASE AND MERIDIAN) MARICOPA COUNTY, ARIZONA.

PHOTO DATE: JUNE 2004

Kimley-Horn and Associates, inc.
KIMLEY-HORN AND ASSOCIATES, INC.
Engineering, Planning, and Environmental Consultants
7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

NO. REVISION DATE

DATE: 7/04

STARPOINT

WASH SYSTEM
SCOTTSDALE, ARIZONA

PROJECT NO. 091505003

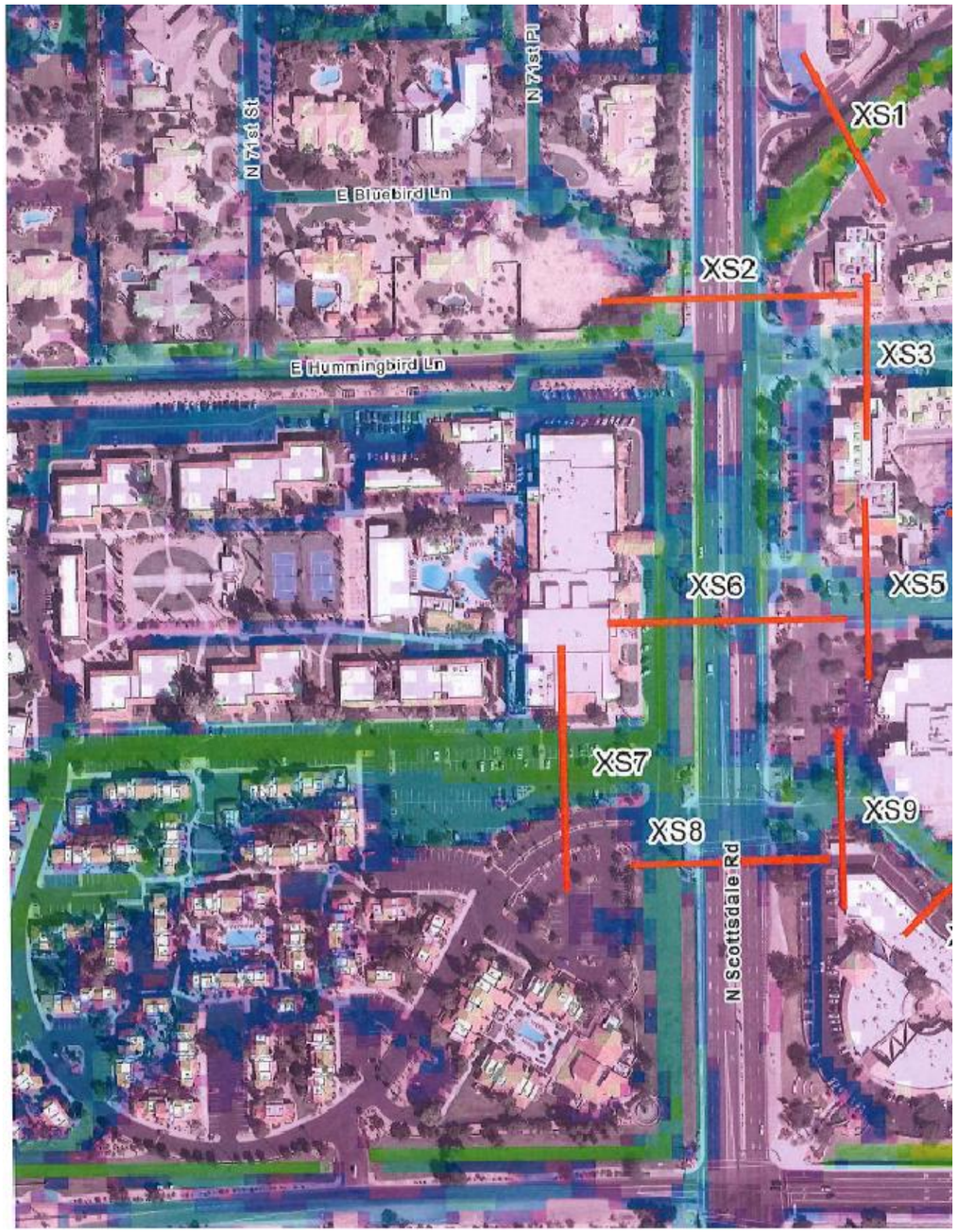
DRAWING NAME 915003JD

1 OF 1

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Kimley»Horn

Appendix J: LIBW-ADMS Flo-2D Exhibit



FLO-2D VALUES	
CROSS SECTION	FLOW (CFS)
XS1	112
XS2	35
XS3	57
XS5	59
XS6	198
XS7	272
XS8	42
XS9	83

NORTH

APPENDIX J: LIBW-ADMS
FLO-2D EXHIBIT

Kimley»Horn

Kimley»Horn

Figure 1: Vicinity Map

VICINITY MAP FOR ARTESIA SCOTTSDALE, ARIZONA

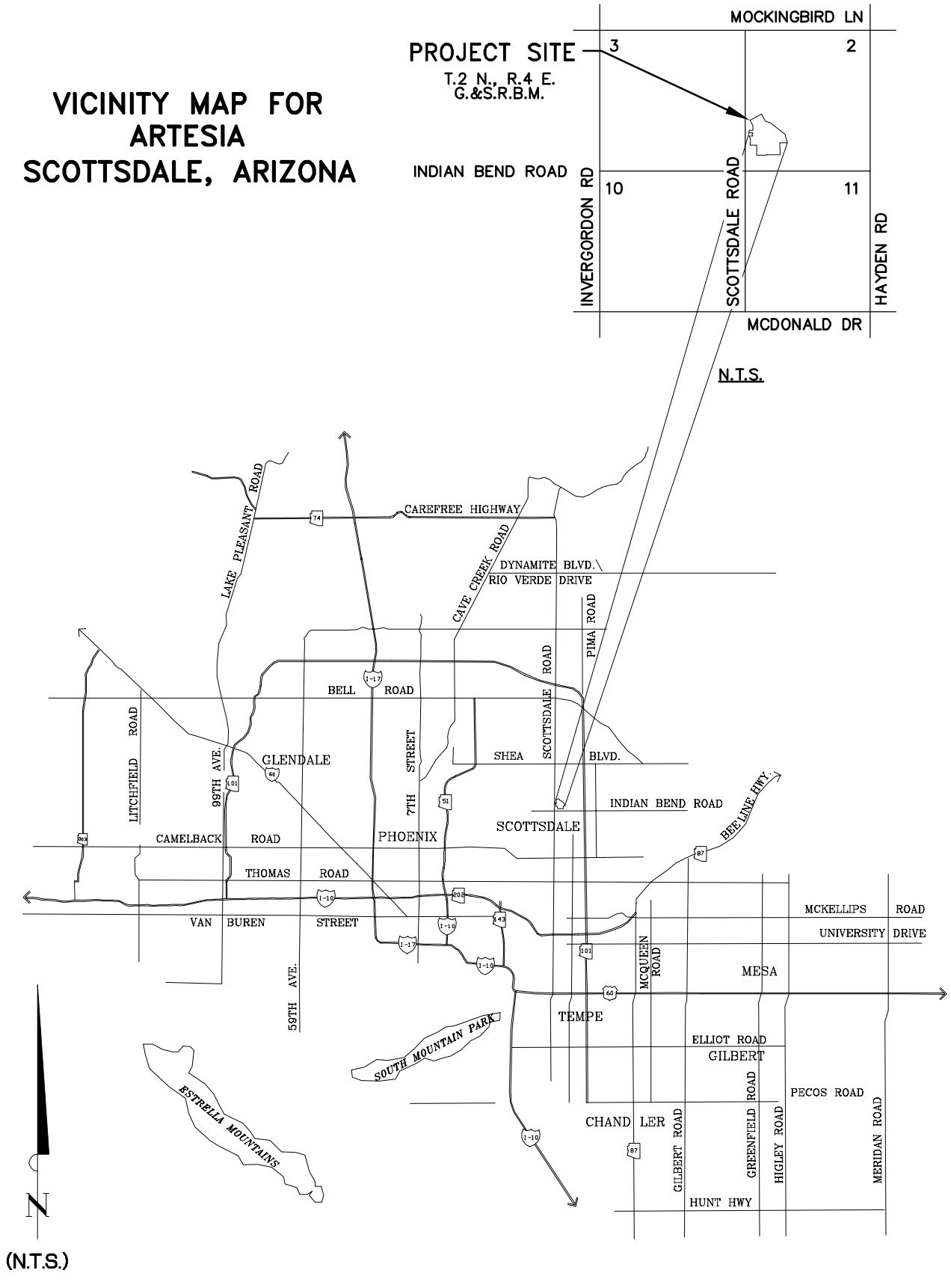


FIGURE 1

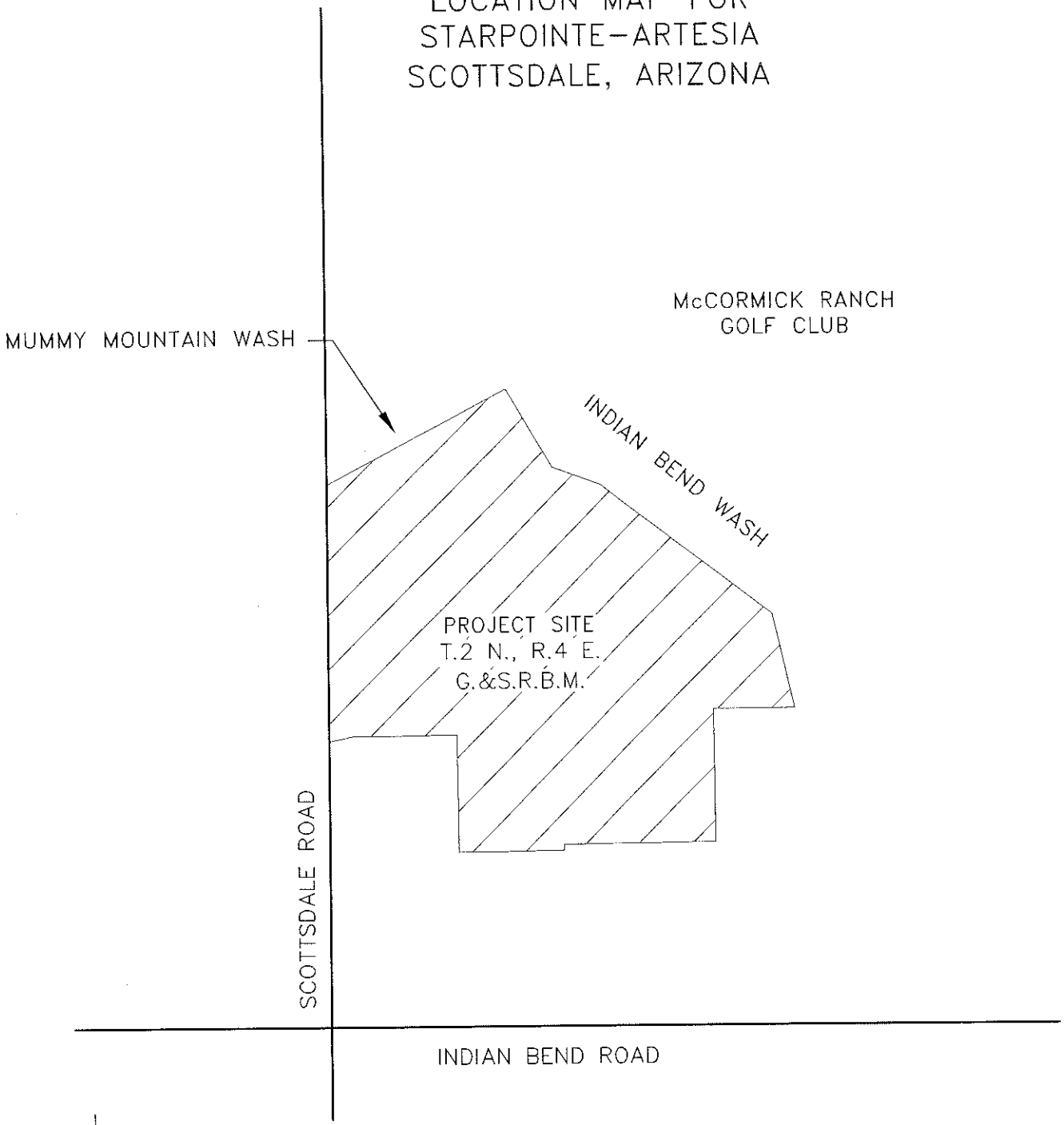
K:\PHX_Civil\191675002 - SFI Artesia\CADD\Exhibits\Vicinity Map_2014.dwg May 31, 2017 kdey.buethe
XREFS:

Kimley»Horn

Kimley»Horn

Figure 2: Location Map

LOCATION MAP FOR STARPOINTE–ARTESIA SCOTTSDALE, ARIZONA



N.T.S.

FIGURE 2

Kimley-Horn and Associates, Inc.

Kimley»Horn

Figure 3: Existing On-Site Conditions



Sub-Basin	Area (acres)	High Elev	Low Elev	Drainage Length	Q_2	Q_{10}	Q_{50}	Q_{100}	Concentration Point
A1	2.37	95.35	90.00	1082	5	8	13	16	2
A2	1.22	95.27	93.64	1340	2	3	5	6	2
A3	1.06	95.00	91.99	1020	2	3	6	6	2
A4	0.63	95.00	91.57	500	2	3	4	5	2
A5	2.12	94.98	92.20	1020	4	6	11	13	2
A6	1.91	96.21	92.00	1250	3	6	10	11	2
A7	0.46	92.50	90.00	310	1	2	3	4	2
A TOTAL					**19**	**31**	**52**	**61**	2
B1	0.56	97.50	93.00	250	2	3	4	5	2
B2*	0.25	-	-	-	1	1	2	2	2
B3*	0.11	-	-	-	0	1	1	1	2
B4*	0.28	-	-	-	1	1	2	2	2
B5	0.81	95.50	92.43	550	2	3	5	6	2
B6	4.72	96.30	92.43	760	10	17	30	34	2
B7*	0.28	-	-	-	1	1	2	2	2
B8*	0.11	-	-	-	0	1	1	1	2
B9*	0.25	-	-	-	1	1	2	2	2
B10	0.27	96.60	94.50	125	1	1	2	2	2
B11	0.43	96.60	94.70	180	1	2	3	4	2
B12*	0.05	-	-	-	0	0	0	0	2
B13	0.53	95.3	92.8	205.0	2	2	4	4	2
B15*	0.05	-	-	-	0	0	0	0	2
B16*	0.25	-	-	-	1	1	2	2	2
B17	0.87	93.64	90.89	115	3	4	6	7	2
B TOTAL					**26**	**39**	**66**	**74**	2
C1*	0.05				0	0	0	0	2
C2	0.12	96.30	95.27	60	0	1	1	1	2
C3*	0.22	-	-	-	1	1	2	2	2
C4	0.30	97.00	94.80	135	1	1	2	3	2
C5*	0.10	-	-	-	0	0	1	1	2
C6	0.23	97.00	94.80	150	1	1	2	2	2
C7	0.57	95.20	84.50	350	2	3	4	5	2
C TOTAL					**5**	**7**	**12**	**14**	2
D1*	0.11	-	-	-	0	1	1	1	2
D2*	0.28	-	-	-	1	1	2	2	2
D3	0.70	94.90	92.42	170	2	3	5	6	2
D4*	0.28	-	-	-	1	1	2	2	2
D5*	0.11	-	-	-	0	1	1	1	2
D6*	0.25	-	-	-	1	1	2	2	2
D7	0.22	95.00	93.55	120	1	1	2	2	2
D8	0.44	95.60	94.31	440	1	2	3	3	2
D9	0.28	95.60	93.95	240	1	1	2	2	2
D10	0.05	-	-	-	0	0	0	0	2
D TOTAL					**8**	**12**	**20**	**21**	2
E1*	0.05	-	-	-	0	0	0	0	2
E2*	0.05	-	-	-	0	0	0	0	2
E3*	0.05	-	-	-	0	0	0	0	2
E TOTAL					**0**	**0**	**0**	**0**	2
SH1	0.09	95.50	94.50	120	0	0	1	1	2
SH2	0.09	95.50	94.10	55	0	0	1	1	2
SH4	0.12	95.00	94.10	85	0	1	1	1	2
SH7	0.08	95.00	94.50	60	0	0	1	1	2
SH8	0.20	95.20	94.50	120	1	1	1	2	2
CY1	0.04	95.00	94.20	40	0	0	0	0	2
CY2	0.05	95.00	94.20	50	0	0	0	0	2
CY3	0.04	95.00	94.20	50	0	0	0	0	2
CY4	0.04	95.00	94.20	40	0	0	0	0	2
CH1	0.12	95.00	94.10	70	0	1	1	1	2
CH2	0.07	95.00	94.10	60	0	0	1	1	2
CH3	0.21	95.00	94.10	120	1	1	2	2	2
CH4	0.20	95.50	94.26	115	1	1	1	2	2
CH6	0.06	95.50	94.26	50	0	0	1	1	2
CH8	0.11	95.50	94.26	65	0	1	1	1	2
TOTAL					**3**	**6**	**11**	**14**	2
F1	0.73	95.78	93.54	241	2	3	5	6	1
F2	0.27	95.50	94.30	107	1	1	2	2	1
TOTAL					**3**	**4**	**7**	**8**	
H1	0.82	97.5	95.5	300	2	4	6	7	1
H2	0.09	96.9	95.7	80	0	0	1	1	1
TOTAL					**2**	**4**	**7**	**8**	
J1	0.92	97.50	94.40	150	3	4	7	8	1

* Drainage area includes only building roof, podium deck and garage area. Areas provided by MEP Engineer and not shown on plan.
Note: Zero values represent flows below 0.5 cfs. A minimum value of 0.5 cfs was used in place of zero values in the model.

LEGEND

- PROPERTY LINE
- SUB-BASIN BOUNDARY
- FLOW LINE
- STORM DRAIN
- CATCH BASIN
- BUBBLE-UP STRUCTURE
- STORM MANHOLE
- DRAINAGE POINT
- DIRECTION OF FLOW
- A1 SUB-BASIN ID

N

GRAPHIC SCALE
80 0 40 80 160
(IN FEET)

Kimley»Horn

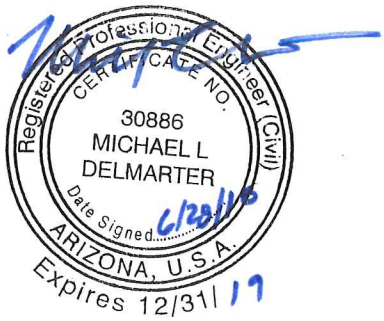
FIGURE 3: EXISTING ONSITE SUB-BASINS

K:\PHX_Civil\191675002 - SFI Arrivo\CADD\Exhibits\Drainage Exhibit.dwg Jun 17, 2014 matt.anderson
XREFS: X5050208M, X5050208sd, 5050208D01
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

Kimley»Horn

Figure 4: Topographic Map of Existing On-Site and Off-Site Conditions

DISCLAIMER:
THE ENGINEER CERTIFIES THAT THE IMPROVEMENT PLANS APPROVED IN 2006 ARE A TRUE REPRESENTATION OF THE EXISTING GRADES ON SITE TODAY IN THE AREAS THAT WERE NOT SURVEYED FOR THIS UPDATED SET OF IMPROVEMENT PLANS. ADDITIONAL AS-BUILT CURRENT SURVEY DATA IS NOT REQUIRED FOR THIS SITE. CONTRACTOR TO VERIFY EXISTING ELEVATIONS AND NOTIFY ENGINEER OF DISCREPANCIES WITH THE PLANS.



IMPROVEMENT PLANS
FOR
STARPOINTE–ARTESIA
SCOTTSDALE, AZ
A PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, T–2–N, R–4–E, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

3 CHANGES — Professional Engineer Certificate No. 47693 HEATHER HIRSCHBERG Arizona U.S.A. Expires 03/31/11

1 CHANGES — Professional Engineer Certificate No. 30886 MICHAEL L. DELMARTER Arizona U.S.A. Expires 03/31/10

2 CHANGES — Professional Engineer Certificate No. 40659 BRIAN R. GILLIS Arizona U.S.A. EXP 3/31/10

LEGEND

	PROPERTY LINE
	PROPOSED EASEMENT
	EXISTING EASEMENT
SS	PROPOSED SEWER LINE
SS	EXISTING SEWER LINE
W	PROPOSED WATER LINE WITH 3' MIN. COVER
W	PROPOSED WATER LINE WITH 4' MIN. COVER
W	EXISTING WATER LINE
	PROPOSED RETAINING WALL
	PROPOSED RIGHT–OF–WAY
	EXISTING RIGHT–OF–WAY
	PROPOSED EDGE OF PAVEMENT
	EXISTING EDGE OF PAVEMENT
	PROPOSED BACK OF CURB
	EXISTING BACK OF CURB
	PROPOSED SIDEWALK
	EXISTING SIDEWALK
	PROPOSED CENTERLINE
	EXISTING CENTERLINE
	PROPOSED STORM DRAIN
	PROPOSED LIMITS OF GRADING
	PROPOSED RETENTION BASIN
	PROPOSED STREET SIGN AND BASE
	PROPOSED SURVEY MONUMENT PER
	PROPOSED SEWER MANHOLE
	EXISTING SEWER MANHOLE
	PROPOSED STORM DRAIN MANHOLE
	PROPOSED STORM DRAIN CATCH BASIN
	PROPOSED CLEANOUT
	PROPOSED FIRE HYDRANT
	EXISTING FIRE HYDRANT
PUE	PUBLIC UTILITY EASEMENT
R/W	RIGHT–OF–WAY
VNAE	VEHICULAR NON–ACCESS EASEMENT
B/B	BACK OF CURB TO BACK OF CURB
P/L	PROPERTY LINE
BC	BACK OF CURB
FL	FLOW LINE
S/W	PROPOSED SIDEWALK
CL	CENTERLINE
BVC	BEGIN VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
EVC	END VERTICAL CURVE
NAOS	NATURAL AREA OPEN SPACE
NAOS & DE	NATURAL AREA OPEN SPACE AND DRAINAGE EASEMENT
DE	DRAINAGE EASEMENT
SDE	SIGHT DISTANCE EASEMENT
	DRAINAGE FLOW ARROW
	SANITARY SEWER FLOW ARROW
INVERT OF PIPE / TOP OF PIPE	CROSSING INFO
LF_{65}	FINISHED FLOOR ELEVATION

1098-06-18

CIVIL REAPPROVAL

Reapproval #	Revised Sheet No.(s)	Description of Revision(s)
1	C-5, C6, C-8, C-9, C-11, C-22, C-23, C-24, C26, C29, C30, C-31, C-41	REVISED PER SITE CHANGES*
Paving	Appv'd & Held 11-28-07	Traffic N/A
G & D	Appv'd & Held 11-28-07	Planning N/A
W & S	N/A	Fire 11-28-07
Ret. Walls	Appv'd & Held 11-28-07	

Joseph D Mania — Engineering Coordination Mgr. (or designee) — 11/28/07 Date

* SITE CHANGES INCLUDE THE FOLLOWING: WATER METER ADDITION, FLOOD WALL REMOVAL FROM PLANS, GRADING REVISIONS, WATER & SEWER REVISIONS.

1098-06-21

CIVIL REAPPROVAL

Reapproval #	Revised Sheet No.(s)	Description of Revision(s)
2	C6, C7, C9, C16, C16, C18	SEE BELOW
Paving	Appv'd & Held	Traffic N/A
G & D	Appv'd & Held	Planning
W & S	N/A	Fire 3-3-09
Ret. Walls	N/A	

Joseph D Mania — Engineering Coordination Mgr. (or designee) — 3/4/09 Date

SITE CHANGES INCLUDE THE FOLLOWING: PARKING AREA GRADING & PAVING REVISIONS.

CIVIL REAPPROVAL

Reapproval #	Revised Sheet No.(s)	Description of Revision(s)
3	C27, C30	UTILITY ABANDONMENT
Paving	Appv'd & Held 5-21-09	Traffic N/A
G & D	N/A	Planning
W & S	Appv'd & Held 5-21-09	Fire R. Nolte 5/21/09
Ret. Walls	N/A	

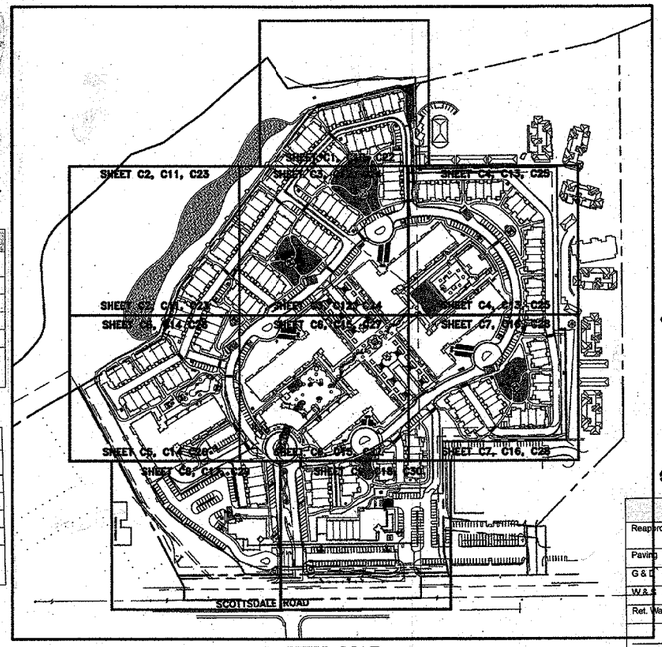
Joseph D Mania — Engineering Coordination Mgr. (or designee) — 5/21/09 Date

1098-06-22

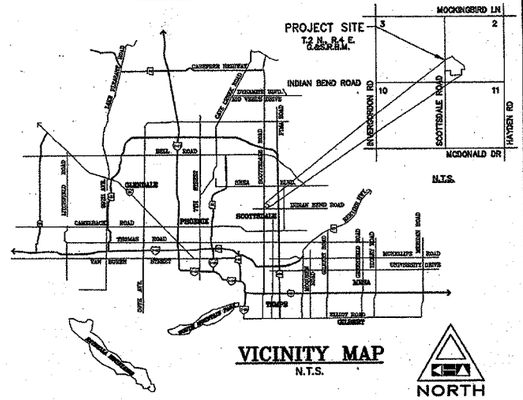
CIVIL REAPPROVAL

Reapproval #	Revised Sheet No.(s)	Description of Revision(s)
4	C27, C30	UTILITY ABANDON., EXTENSION
Paving		Traffic
G & D		Planning
W & S		Fire
Ret. Walls		

Engineering Coordination Mgr. (or designee) — Date



KEY MAP 1"=200'



VICINITY MAP N.T.S.

NORTH

SHEET INDEX:

SHEET NO.	DESCRIPTION
C0	COVER SHEET
C0.1	GENERAL NOTES SHEET
C1–C9	GRADING & DRAINAGE PLANS
C10–C18	HORIZONTAL CONTROL AND PAVING PLANS
C19–C21	DETAILS
C22–C30	UTILITY PLANS
C31–C40	PRIVATE SANITARY SEWER PROFILES
C41	OFFSITE PAVING PLAN
C42	OFFSITE PAVING DETAILS
C43	PAVEMENT MARKINGS
~~S1–S2~~	~~RETAINING WALL DETAILS~~

ENGINEER
KIMLEY–HORN AND ASSOCIATES, INC.
7878 N. 16TH STREET, SUITE 300
PHOENIX, ARIZONA 85020
CONTACT: PAT LOWRY
E–MAIL: PAT.LOWRY@KIMLEY–HORN.COM
PHONE: (602) 944–5500
FAX: (602) 997–9764

OWNER/DEVELOPER
STARPOINTE COMMUNITIES
8135 E. INDIAN BEND RD, SUITE 101
SCOTTSDALE, AZ. 85250
CONACT: MIKE D'ANDREA
E–MAIL: MICHAEL.DANDREA@STARPOINTECOMMUNITIES.NET
PHONE: (480) 609–6779
FAX: (480) 609–6775

ARCHITECTS
KEPHART
CONTACT: BRIAN GLOVER
770 SHERMAN ST.
DEVER, CO 80203
PHONE: (303) 832 4474

NELSEN ARCHITECTS, INC.
CONTACT: MICHAEL MILBURN
15044 N. SCOTTSDALE RD., SUITE 200
SCOTTSDALE, AZ 85020
PHONE: (480) 949 6800

SURVEYOR
ACZA ENGINEERING, INC.
POST OFFICE BOX 1877
GILBERT, AZ. 85299
TELEPHONE: (480) 813–1931
FAX: (480) 813–1457

BENCHMARK
CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE AT THE INTERSCTION OF SCOTTSDALE RD. AND LINCOLN DR.
ELEV. = 1302.435 (NAVD 88).

I HEREBY CERTIFY THAT ALL ELEVATIONS REPRESENTED ON THIS PLAN ARE BASED ON THE ELEVATION DATUM FOR THE CITY OF SCOTTSDALE BENCHMARK AS PROVIDED ABOVE.

5/3/07
REGISTERED CIVIL ENGINEER — DATE

ENGINEER'S STATEMENT
THE ENGINEER OF RECORD ON THESE PLANS HAS RECEIVED A COPY OF THE APPROVED STIPULATIONS FOR THIS PROJECT AND HAS DESIGNED THESE PLANS IN CONFORMANCE WITH THE APPROVED STIPULATIONS.

5/3/07
REGISTERED CIVIL ENGINEER — DATE

ENGINEER'S CERTIFICATION
THE LOWEST FLOOR ELEVATION(S) AND/OR FLOODPROOFING ELEVATION(S) ON THIS PLAN ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A 100–YEAR STORM, AND ARE IN ACCORDANCE WITH SCOTTSDALE REVISED CODE, CHAPTER 37– FLOODPLAIN & STORMWATER REGULATION.

5/3/07
REGISTERED CIVIL ENGINEER — DATE

"AS–BUILT CERTIFICATION"
I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED, AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR — DATE — REGISTRATION NUMBER

BASIS OF BEARING
THE BEARING N.0°30'40"W. ON THE MONUMENT LINE OF SCOTTSDALE ROAD AS SHOWN ON PLAT RECORDED IN BOOK 226, PAGE 38, M.C.R.

SITE DATA
GROSS AREA = 1,928,589 S.F. = 44.27 AC.
PARCEL 1 = 933,250 S.F. = 21.42 AC.
PARCEL 2 = 170,823 S.F. = 3.92 AC.
PARCEL 3 = 435,062 S.F. = 9.99 AC.
PARCEL 4 = 368,065 S.F. = 8.45 AC.
PARCEL 8B = 21,389 S.F. = 0.49 AC.

PARCELS 5, 6 & 7 ARE EASEMENTS AND ARE NOT DETERMINED FOR PROPERTY AREA HEREON.

UTILITIES

WATER & SEWER	CITY OF SCOTTSDALE
ELECTRIC	APS
TELEPHONE	COX COMMUNICATIONS
GAS	SOUTHWEST GAS CO.
CABLE T.V.	COX COMMUNICATIONS

ZONING
CURRENT ZONING: ZONING
CASE # 2–ZN–2005
CLASSIFICATION: R–5 (RES.) C–1 (COMM.)

LOT AREA:
GROSS: 44.27 ACRES, 1,928,589 SF (INCLUDES SCOTTSDALE RD.)
NET: 43.29 ACRES, 1,885,602 SF
R–5 PCD: 39.00 ACRES
C–1 PCD: 4.56 ACRES
OPEN SPACE: 10.1 ACRES, 439,956 SF

APPROVAL:
T.E. Cluff 071713, 071714 — 5/7/07
MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT — DATE

NATIVE PLANT PLAN AND PERMIT # = 1098–06–1

GENERAL NOTES:
CITY OF SCOTTSDALE GENERAL CONSTRUCTION NOTES FOR PUBLIC WORKS CONSTRUCTION

1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS–OF–WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT IN DETAIL, OF ENGINEERING DESIGNS; THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR REAPPROVAL.
4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHTS–OF–WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO BEGINNING CONSTRUCTION BY CALLING 480–312–5750.
5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 602–263–1100, TWO WORKING DAYS BEFORE EXCAVATION BEGINS. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY.
6. ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS–OF–WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY ONLY AFTER THE REGISTRANT HAS PAID A BASE FEE PLUS A FEE FOR INSPECTION SERVICES. COPIES OF ALL PERMITS MUST BE RETAINED ON–SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
7. ALL EXCAVATION AND GRADING THAT IS NOT IN THE PUBLIC RIGHTS–OF–WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.

CIVIL APPROVAL
REVIEW AND RECOMMENDED APPROVAL BY:

PAVING	Pamela Fink 7/3/07	TRAFFIC	Pamela Fink 7/3/07
G & D	Pamela Fink 7/3/07	PLANNING	6.27.07
W & S	Pamela Fink and Water Resources Department 7/3/07	FIRE	6.29.07
RET. WALLS	NA		

ENGINEERING COORDINATION MANAGER (OR DESIGNEE) — 7/3/07 DATE

NO CONFLICT SIGNATURE BLOCK

UTILITY	UTILITY COMPANY	NAME OF COMPANY REPRESENTATIVE	TELEPHONE NUMBER	DATE SIGNED
WATER	CITY OF SCOTTSDALE	N/A	N/A	N/A
SEWER	CITY OF SCOTTSDALE	N/A	N/A	N/A
ELECTRIC	ARIZONA PUBLIC SERVICE	STEVEN R. POLLOCK	(602) 493–4421	9/19/06
TELEPHONE	COX COMMUNICATIONS	WALTER COOMBS	(623) 594–0505	11/08/06
GAS	SOUTHWEST GAS	NORMA C. JARDIN	(602) 484–5344	9/14/06
CABLE	COX COMMUNICATIONS	WALTER COOMBS	(623) 594–0505	11/08/06

ENGINEER'S CERTIFICATION

I, MICHAEL L. DELMARTER, P.E., AS THE ENGINEER OF RECORD FOR THIS DEVELOPMENT, HEREBY CERTIFY THAT ALL UTILITY COMPANIES LISTED ABOVE HAVE BEEN PROVIDED FINAL IMPROVEMENT PLANS FOR REVIEW, AND THAT ALL CONFLICTS IDENTIFIED BY THE UTILITIES HAVE BEEN RESOLVED. IN ADDITION, "NO CONFLICT" FORMS HAVE BEEN OBTAINED FROM EACH UTILITY COMPANY AND ARE INCLUDED IN THIS SUBMITTAL.

SIGNATURE — 5/3/07 DATE

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL # PANEL DATE	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE, USE DEPTH)
045012	0401 3C1695H	H	SEPT 30, 2005	X, SHADED ZONE X	NONE, < 1'

4	1098-06-18	4	1098-06-21
3	1098-06-21	3	1098-06-22

NO.	REVISION	BY	DATE	APPR.
1	REVISED PER SITE CHANGES	PEL	11/28/07	PEL

Kimley-Horn and Associates, Inc.
© 2007 KIMLEY–HORN AND ASSOCIATES, INC.
7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944–5500

SCALE (H): NONE
SCALE (V): NONE
DESIGNED BY: ANM
DRAWN BY: ANM
CHECKED BY: PEL
DATE: 05–02–07

PLAN CHECK# 1098–08–2 DR# 8–DR–2006 CASE# 2–ZN–2005 1–GP–2005 NATIVE PLANT# 1098–06–1

STARPOINTE–ARTESIA
CIVIL ON–SITE CONSTRUCTION PLANS
COVER SHEET
CITY OF SCOTTSDALE

Professional Engineer Certificate No. 30886 MICHAEL L. DELMARTER Arizona U.S.A. Expires 03/31/10

PROJECT NO. 091505008
DRAWING NAME 505008CV
C–0

602–263–1100 1–800–STAKE–IT

K:\...\PHX\505008\CADD\Working Drawings\505008CV.dwg May 02, 2007 andrew.finnson
XREFS: x505008VS x505008BM x505008TB
IF ANY ADDITIONAL CONTRACTOR OR SUBCONTRACTOR AND/OR ANY OTHER PERSON OR ENTITY OTHER THAN THE ENGINEER IS USING THESE PLANS FOR CONSTRUCTION PURPOSES IN ANY MANNER WHATSOEVER, THAT CONTRACTOR, SUBCONTRACTOR AND/OR OTHER PERSON OR ENTITY AGREES TO INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE USE OF THESE PLANS FOR CONSTRUCTION PURPOSES, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER.

LEGAL DESCRIPTION

PARCEL NO. 1

THENCE NORTH 89°29'20" EAST 1565.45 FEET TO THE TRUE POINT OF BEGINNING; THENCE ALONG A CURVE TO THE RIGHT WHOSE RADIUS IS 180.00 FEET THROUGH A CENTRAL ANGLE OF 53°00' COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE NORTH 00°30'40" WEST ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 580.00 FEET;

THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 2; THENCE ALONG THE SOUTHERLY LINE OF SAID NORTH HALF, SOUTH 89°03'25" EAST 40.01 FEET; THENCE IN A DIRECT LINE WITH THE NORTHEAST CORNER OF SAID NORTH HALF, NORTH 62°10'22" EAST 28.14 FEET TO A POINT ON A LINE PARALLEL WITH AND DISTANT EASTERLY 65.00 FEET AS MEASURED AT RIGHT ANGLES TO THE WESTERLY LINE OF SAID SECTION 2, SAID POINT BEING REFERRED TO AS "POINT A" FOR THE PURPOSE OF THIS DESCRIPTION; THENCE CONTINUING ALONG SAID DIRECT LINE NORTH 62°10'22" EAST 657.46 FEET TO THE NORTHEAST CORNER OF SAID NORTH HALF; THENCE SOUTH 30°58'31" EAST 292.85 FEET; THENCE SOUTH 70°09'50" EAST 167.65 FEET; THENCE SOUTH 52°41'30" EAST 427.67 FEET; THENCE SOUTH 37°20'16" WEST 583.38 FEET; THENCE SOUTH 89°29'20" WEST 934.69 FEET TO A POINT ON THE WESTERLY LINE OF SAID SOUTHWEST QUARTER OF SECTION 2 DISTANT SOUTHERLY 720.00 FEET TO THE POINT OF BEGINNING; THENCE ALONG SAID WESTERLY LINE NORTH 00°30'40" WEST 720.00 FEET TO THE POINT OF BEGINNING.

EXCEPT ALL GROUNDWATERS UNDERLYING SAID PROPERTY AS RESERVED IN DEED RECORDED IN DOCKET 10454, PAGE 1224, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO. 2

THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 2; THENCE NORTH 00°30'40" WEST ALONG THE WEST ALONG THE WEST LINE OF SAID SECTION 2 A DISTANCE OF 930.66 FEET; THENCE NORTH 89°29'20" EAST 934.69 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING NORTH 89°29'20" EAST 630.76 FEET; THENCE NORTH 13°08'50" WEST 308.81 FEET; THENCE NORTH 52°41'30" WEST 259.83 FEET; THENCE SOUTH 37°20'16" WEST 583.38 FEET TO THE TRUE POINT OF BEGINNING;

EXCEPT ALL GROUNDWATERS UNDERLYING SAID PROPERTY AS RESERVED IN DEED RECORDED IN DOCKET 10454, PAGE 1224, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO. 3

THE PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 2; THENCE NORTH 00°30'40" WEST ALONG THE WEST LINE OF SAID SECTION 2, A DISTANCE OF 930.66 FEET; THENCE NORTH 13°08'50" WEST 308.81 FEET; THENCE NORTH 52°41'30" WEST 687.50 FEET; THENCE NORTH 70°09'50" WEST 167.65 FEET; THENCE NORTH 30°58'31" WEST 292.85 FEET; THENCE NORTH 30°54'33" WEST 484.63 FEET; THENCE NORTH 72°01'30" EAST 142.86 FEET; THENCE SOUTH 15°53'16" EAST 128.96 FEET; THENCE SOUTH 38°09'39" EAST 73.14 FEET; THENCE NORTH 83°05'20" EAST 45.00 FEET; THENCE SOUTH 32°02'32" EAST 92.52 FEET; THENCE SOUTH 40°01'01" EAST 45.00 FEET; THENCE SOUTH 47°16'09" EAST 55.94 FEET; THENCE ALONG A CURVE TO THE LEFT WHOSE RADIUS IS 120.00 FEET THROUGH A CENTRAL ANGLE OF 46°47'53", AN ARC DISTANCE OF 98.01 FEET; THENCE NORTH 85°55'58" EAST 139.80 FEET; 51", AN ARC DISTANCE OF 166.55 FEET; THENCE SOUTH 41°03'11" EAST 143.00 FEET; THENCE SOUTH 45°18'02" EAST 147.02 FEET; THENCE SOUTH 20°21'05" EAST 105.24 FEET; THENCE SOUTH 37°20'14" EAST 143.85 FEET; THENCE SOUTH 42°21'54" EAST 147.10 FEET; THENCE SOUTH 39°55'17" EAST 118.68 FEET; THENCE SOUTH 55°40'57" WEST 113.76 FEET; THENCE SOUTH 7°21'31" EAST 188.79 FEET; THENCE SOUTH 21°8'53" EAST 199.96 FEET; THENCE SOUTH 89°29'20" WEST 19.46 FEET TO THE TRUE POINT OF BEGINNING.

EXCEPT ALL GROUNDWATERS UNDERLYING SAID PROPERTY AS RESERVED IN DEED RECORDED IN DOCKET 12015, PAGE 544, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO. 4

BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 2; THENCE NORTH 00°30'40" WEST, AN ASSUMED BEARING ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF SECTION 2, FOR A DISTANCE OF 930.66 FEET; THENCE NORTH 89°29'20" EAST FOR A DISTANCE OF 65.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING NORTH 89°29'20" EAST FOR A DISTANCE OF 1240.14 FEET; THENCE SOUTH 00°30'40" EAST FOR A DISTANCE OF 425.00 FEET; THENCE SOUTH 89°29'20" WEST FOR A DISTANCE OF 776.00 FEET; THENCE NORTH 45°30'40" WEST FOR A DISTANCE OF 21.21 FEET; THENCE NORTH 00°30'40" WEST FOR A DISTANCE OF 340.00 FEET; THENCE SOUTH 89°29'20" WEST FOR A DISTANCE OF 374.14 FEET; THENCE SOUTH 78°10'54" WEST FOR A DISTANCE OF 76.48 FEET; THENCE NORTH 00°30'40" WEST PARALLEL TO AND 65.00 FEET EAST OF THE SAID WEST LINE OF SECTION 2, FOR A DISTANCE OF 85.00 FEET TO THE TRUE POINT OF BEGINNING;

EXCEPT ALL GROUNDWATERS UNDERLYING SAID PROPERTY AS RESERVED IN DEED RECORDED IN DOCKET 12632, PAGE 1438, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO. 5

EASEMENT RIGHTS AS SET FORTH IN INSTRUMENT RECORDED OCTOBER 14, 1987 IN 87-632657, OF OFFICIAL RECORDS (EXHIBIT "F") AND CORRECTED IN INSTRUMENT RECORDED APRIL 4, 1989 IN 89-153090, OF OFFICIAL RECORDS, OVER THE FOLLOWING DESCRIBED PROPERTY: THAT PART OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THENCE NORTH 89°29'20" EAST, A DISTANCE OF 65.00 FEET TO A POINT ON THE EAST LINE OF THE WEST 65.00 FEET OF SAID SOUTHWEST QUARTER AND THE POINT OF BEGINNING; THENCE CONTINUING NORTH 89°29'20" EAST, DISTANCE OF 145.68 FEET; THENCE SOUTH 00°30'40" EAST, A DISTANCE OF 28.00 FEET; THENCE SOUTH 89°29'20" WEST, A DISTANCE OF 145.68 FEET TO A POINT ON THE EAST LINE OF THE WEST 65.00 FEET OF SAID SOUTHWEST QUARTER; THENCE NORTH 00°30'40" WEST ALONG SAID EAST LINE A DISTANCE OF 28.00 FEET TO THE POINT OF BEGINNING.

PARCEL NO. 6

EASEMENT RIGHTS AS SET FORTH IN INSTRUMENT RECORDED OCTOBER 14, 1987 IN 87-632657, OF OFFICIAL RECORDS (EXHIBIT "G") AND CORRECTED IN INSTRUMENT RECORDED APRIL 4, 1989 IN 89-153090, OF OFFICIAL RECORDS, OVER THE FOLLOWING DESCRIBED PROPERTY:

THAT PART OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE NORTH 00°30'40" WEST ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 580.00 FEET; THENCE NORTH 89°29'20" EAST A DISTANCE OF 65.00 FEET TO A POINT ON THE EAST LINE OF THE WEST 65.00 FEET OF SAID SOUTHWEST QUARTER AND THE POINT OF BEGINNING; THENCE NORTH 00°30'40" WEST ALONG SAID EAST LINE, A DISTANCE 28.00 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 145.68 FEET; THENCE SOUTH 00°30'40" EAST, A DISTANCE OF 28.00 FEET; THENCE SOUTH 89°29'20" WEST, A DISTANCE OF 145.68 FEET TO THE POINT OF BEGINNING.

PARCEL NO. 7

EASEMENT RIGHTS AS SET FORTH IN INSTRUMENT RECORDED OCTOBER 14, 1987 IN 87-632658, OF OFFICIAL RECORDS (EXHIBIT "D") OVER THE FOLLOWING DESCRIBED PROPERTY:

THAT PART OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE NORTH 00°30'40" WEST ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 580.00 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 174.49 FEET TO THE POINT OF BEGINNING; THENCE NORTH 05°23'03" EAST, A DISTANCE OF 282.15 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 36.19 FEET; THENCE SOUTH 05°23'33" WEST, A DISTANCE OF 282.15 FEET; THENCE SOUTH 89°29'20" WEST, A DISTANCE OF 36.19 FEET TO THE POINT OF BEGINNING.

LEGAL DESCRIPTION (CONT.)

PARCEL NO. 8B

THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 2; THENCE NORTH 00°30'40" WEST, ALONG THE WEST LINE OF SAID SECTION 2, A DISTANCE OF 930.66 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 65.00 FEET, TO A POINT ON THE EAST RIGHT OF WAY OF SCOTTSDALE ROAD;
THENCE SOUTH 00°30'40" EAST, ALONG SAID RIGHT OF WAY, A DISTANCE OF 85.00 FEET; THENCE NORTH 78°10'45" EAST, A DISTANCE OF 76.48 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 333.64 FEET, TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 89°29'20" EAST, A DISTANCE OF 40.50 FEET; THENCE SOUTH 00°30'40" EAST, A DISTANCE OF 340.00 FEET; THENCE SOUTH 45° 30'40" EAST, A DISTANCE OF 21.21 FEET; THENCE NORTH 89°29'20" EAST, A DISTANCE OF 286.05 FEET; THENCE SOUTH 00°30'40" EAST, A DISTANCE OF 20.20 FEET; THENCE SOUTH 89°29'20" WEST, A DISTANCE OF 341.55 FEET; THENCE NORTH 00°30'40" WEST, A DISTANCE OF 375.20 FEET, TO THE TRUE POINT OF BEGINNING.

TOGETHER WITH EASEMENT OF ENJOYMENT OF ASSOCIATION LAND CONTAINED IN DECLARATION OF COVENANTS, CONDITIONS, ASSESSMENTS, CHARGES, SERVITUDES, LIENS, RESERVATIONS, AND EASEMENTS FOR MCCORMICK RANCH RECORDED DECEMBER 29, 1971 IN DOCKET 9148, PAGE 706.

TOGETHER WITH DRIVEWAY EASEMENT ABUTTING PARCEL 4 FOR THE BENEFIT OF PARCEL 4 AND FOR THE FURTHER BENEFIT OF PARCELS 1, 2 AND 3 RECORDED IN 87-632658.

TOGETHER WITH DECLARATION CREATING RECORDED OCTOBER 14, 1987 IN 87-632657 AND AFFIDAVIT OF CORRECTION RECORDED IN 89-153090. (IDENTIFIED AS PARCEL 5 AND BENEFITING PARCEL 6 AND FOR THE FURTHER BENEFIT OF PARCELS 7, 4, 1, 2 AND 3)

ENGINEERS NOTES

1. A REASONABLE ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA, HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES AND MAKE THE ENGINEER AWARE, IN ADVANCE OF CONSTRUCTION.
2. ALL CONCRETE EXPOSED AT GROUND SURFACE SHALL BE INTEGRALLY COLORED TO BLEND WITH THE SURROUNDING DESERT. CONTRACTOR TO SUBMIT COLOR CHARTS TO OWNER FOR APPROVAL PRIOR TO ANY COLORED CONCRETE CONSTRUCTION. NO CONCRETE SHALL BE USED IN DEDICATED N.A.O.S. AREAS.
3. REFER TO THE GEOTECHNICAL EVALUATION PREPARED FOR THIS PROJECT, FOR PAVING DESIGNS, SPECIFICATIONS SUB GRADE PREPARATION AND GEOTECHNICAL RECOMMENDATIONS.
4. AREAS WITHIN THE SIGHT DISTANCE TRIANGLE ARE TO BE CLEAR OF LANDSCAPING, SIGNS, OR OTHER VISIBLE OBSTRUCTIONS BETWEEN 2 FEET AND 7 FEET IN HEIGHT AND 6 INCHES MAXIMUM WIDTH OR DIAMETER. TREES WITHIN THE SITE DISTANCE TRIANGLE SHALL HAVE A CANOPY THAT BEGINS AT 7' IN HEIGHT.
5. SIGNS REQUIRE SEPARATE APPROVALS AND PERMITS.
6. ALL GRADED LAND AND AREAS DISTURBED BY ROAD AND UTILITY CONSTRUCTION WILL BE REVEGETATED BY THE DEVELOPER USING NATIVE PLANT SPECIES IN APPROXIMATELY THE SAME DENSITY AS NATURAL DESERT. IRRIGATION WILL BE EITHER HAND-WATERING OR BY AN AUTOMATIC DRIP SYSTEM.

WATER NOTES:

1. WATER METERS, WATER LINE BLOW-OFFS, MAIN LINE VALVES, AND FIRE HYDRANTS SHALL NOT BE CONSTRUCTED IN DRIVEWAYS, SIDEWALKS, WASHES, OR RETENTION AREAS.
2. PACK JOINT METER STOPS OR CORP. STOPS SHALL BE USED EXCLUSIVELY.
3. WATER LINES SHALL BE DISINFECTED IN STRICT CONFORMANCE WITH MAG STANDARD SPECIFICATION #611.9. MAG #611.9 IS HEREWITH AMENDED AS FOLLOWS: "DRY POWDERED CALCIUM-HYPOCHLORITE COMPOUNDS SHALL NOT BE PLACED WITHIN PIPELINES DURING CONSTRUCTION."
4. NOTIFY THE CITY'S FIELD ENGINEERING REPRESENTATIVE AT 391-5750 WHEN READY TO HAVE SAMPLES TAKEN TO DETERMINE WHETHER DISINFECTION HAS BEEN ADEQUATE. SAMPLES ARE COLLECTED BY THE WATER AND WASTEWATER OPERATIONS DIVISION ON MONDAYS AND WEDNESDAYS ONLY.
5. WATER SERVICE LINE CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF SCOTTSDALE STANDARD DETAIL #2330.
6. TRENCHING, BACKFILLING, AND COMPACTING SHALL BE IN ACCORDANCE WITH THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, MARICOPA ASSOCIATION OF GOVERNMENTS (MAG), SECTION 601 (LATEST REVISION). ALL BACKFILL WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE TYPE 1 UNLESS OTHERWISE NOTED. COMPACTION TESTING WILL BE AS REQUIRED BY THE CITY'S FIELD ENGINEERING MANAGER OR HIS/HER AUTHORIZED REPRESENTATIVE.
7. FOR ALL DUCTILE IRON PIPE INSTALLATIONS, SOIL CORROSIVITY TESTS SHALL BE CONDUCTED EVERY 1,000 FEET ALONG THE PROPOSED PIPELINE ROUTE. TESTING PROCEDURES SHALL BE CONDUCTED AND REPORTED IN ACCORDANCE WITH THE AMERICAN DUCTILE IRON PIPE RESEARCH ASSOCIATION. REPORTS SHALL BE FILED WITH THE CITY.
8. THE INSIDE OF ALL GATE VALVES AND BUTTERFLY VALVES SHALL BE EPOXY COATED PER MAG SPECIFICATIONS FOR GATE VALVES.
9. GATE VALVES SHALL BE PROVIDED WITH LOW-ZINC STEMS.
10. ELECTRONIC LOCATORS SHALL BE A SELF-LEVELING TYPE, SHALL OPERATE AT A FREQUENCY OF 145.7Khz, AND SHALL BE CAPABLE OF DETECTION TO A DEPTH OF 4 FEET.
11. ALL JOINT RESTRAINT FITTINGS FOR VALVES, FIRE HYDRANTS, TEES, CROSSES, CORP. STOPS, VERTICAL REALIGNMENTS, AND BENDS TO INCORPORATE "MEG-A-LUG" JOINT RESTRAINT OR C.O.S. APPROVED EQUIVALENT. SEE JOINT RESTRAINT TABLE ON THIS SHEET.
12. DUCTILE IRON PIPE SHALL BE POLYETHYLENE WRAPPED.
13. IN ACCORDANCE WITH AAC R18-4-119, ALL MATERIALS ADDED AFTER JANUARY 1, 1993 WHICH MAY COME IN CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.

SEWER NOTES

1. ALL SANITARY SEWER LINES SHALL BE CONSTRUCTED TO TRUE LINE AND GRADE, 0.05 FEET PER M.A.G. SPECIFICATION 615.2. THE CITY WILL REQUIRE ALL SANITARY SEWER LINES OUTSIDE OF THE 0.05 FEET TOLERANCE FROM DESIGN GRADE TO BE REMOVED AND REPLACED. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES WHICH MAY INCLUDE SURVEYING OF LINES PRIOR TO BACKFILLING AND SETTING OF MANHOLES, AS NECESSARY, TO VERIFY COMPLIANCE.

TABLE OF QUANTITIES
ON-SITE

STORM WATER QUANTITIES		
4' DIA. MANHOLES	5	EA
5' DIA. MANHOLES	8	EA
7' DIA. MANHOLES	1	EA
6" ADS N-12 HDPE STORM DRAIN	7	LF
8" ADS N-12 HDPE STORM DRAIN	584	LF
10" ADS N-12 HDPE STORM DRAIN	578	LF
12" ADS N-12 HDPE STORM DRAIN	474	LF
15" ADS N-12 HDPE STORM DRAIN	31	LF
18" ADS N-12 HDPE STORM DRAIN	1,392	LF
24" ADS N-12 HDPE STORM DRAIN	658	LF
30" ADS N-12 HDPE STORM DRAIN	555	LF
36" ADS N-12 HDPE STORM DRAIN	777	LF
42" ADS N-12 HDPE STORM DRAIN	397	LF
60" ADS N-12 HDPE STORM DRAIN	326	LF
CATCH BASIN & GRATE	7	EA
BUBBLE-UP STRUCTURE	1	EA
8" NYLOPLAST CATCH BASIN	4	EA
12" NYLOPLAST CATCH BASIN	5	EA
15" NYLOPLAST CATCH BASIN	1	EA
18" NYLOPLAST CATCH BASIN	6	EA
24" NYLOPLAST CATCH BASIN	1	EA
30" NYLOPLAST CATCH BASIN	1	EA
18" NYLOPLAST INLINE DRAIN	3	EA
24" NYLOPLAST INLINE DRAIN	1	EA

PAVING QUANTITIES		
2.5" AC/8" ABC	60,190	SF
3" AC/8" ABC	231,186	SF
7" PC/6" ABC	56,367	SF
CONCRETE SIDEWALK	102,867	SF
CONCRETE VALLEY GUTTER	16,481	SF
RIP-RAP, D50 = 12"	635	SF
RIP-RAP, D50 = 6"	705	SF
4" ROLLED CURB & GUTTER (TYPE C)	5,458	LF
6" VERTICAL CURB & GUTTER	6,609	LF
6" SINGLE CURB	8,494	LF
SIDEWALK RAMPS	106	EA
DOUBLE REFUSE ENCLOSURE	4	EA
BLUE FIRE MARKER	14	EA

SANITARY SEWER - PRIVATE		
8" PVC PIPE	6,850	LF
4' DIA. MANHOLES	31	EA
5' DIA. MANHOLES	19	EA
8" SEWER CLEANOUT	14	EA
6" SEWER CLEANOUT	2	EA
12" PVC PIPE	490	LF
6' CONCRETE ENCASEMENT	42	EA
10' CONCRETE ENCASEMENT	14	EA
BUILDING SEWER CONNECTION (4" PVC)	695	LF
BUILDING SEWER CONNECTION (6" PVC)	940	LF
BUILDING SEWER CONNECTION (8" PVC)	30	LF

WATER QUANTITIES - PUBLIC		
8" DIP PIPE	6,980	LF
6" DIP PIPE	415	LF
4" DIP PIPE	218	LF
2-1/2" PVC PIPE	37	LF
2" COPPER PIPE	818	LF
1" LANDSCAPING CONDUIT	174	LF
8" GATE VALVES	32	EA
6" GATE VALVES	16	EA
4" GATE VALVES	5	EA
AIR RELEASE VALVES	3	EA
REMOVE CAP & CONNECT TO EX. WATER	4	EA
10"x10"x8" T.S.V.B.&C	1	EA
10"x10"x8" TEE	1	EA
8"x8"x8" TEE	15	EA
8"x8"x6" TEE	12	EA
FIRE HYDRANT COMPLETE W/ 6" DIP	12	EA
10" X 8" REDUCER	1	EA
8" X 6" REDUCER	1	EA
4" FEBCO BACKFLOW PREVENTION	5	EA
2" FEBCO BACKFLOW PREVENTION	36	EA
SIAMESE CONNECTION	2	EA
4" METER VAULT	6	EA
2" METER BOX	37	EA

WATER QUANTITIES - PRIVATE		
4" DIP PIPE	463	LF
3" DIP PIPE	22	LF
2-1/2" DIP PIPE	9	LF
2" COPPER PIPE	4,599	LF
1-1/4" COPPER PIPE	870	LF
6" FIRE LINE	438	LF

EARTHWORK QUANTITIES

THE QUANTITIES LISTED BELOW ARE FOR PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL MAKE HIS OWN DETERMINATION OF THE QUANTITIES INVOLVED AND BASE HIS BID ON HIS OWN ESTIMATE.

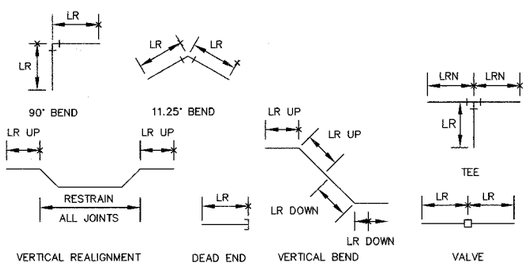
RAW CUT = 89600 CY
RAW FILL = 39230 CY

THE QUANTITIES SHOWN HEREON ARE AN ESTIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES BEFORE BIDDING.

JOINT RESTRAINT TABLE FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP

ITEM	TOTAL LENGTH TO RESTRAIN (LR)
12"x12"x8" TEE	9 (LRN=9)
8"-45° VERTICAL	59 UP, 9 DOWN
8"x8"x8" TEE	17 (LRN=13)
8"x8"x6" TEE	8 (LRN=8)
8"-90° BEND	34
8" VALVES	142
8" DEAD END	142
8"-11.25 BEND	3
FIRE HYDRANT	TOTAL LEAD-IN

(ALL LENGTHS ARE GIVEN IN FEET)



NOTE: 1. MEG-A-LUG RESTRAINT LENGTHS ARE BASED UPON A TEST PRESSURE OF 200 PSI.
2. ON ALL TEE FITTINGS, LRN REPRESENTS THE LENGTH OF PIPE ALONG THE RUN THAT MUST REMAIN SOLID PIPE FREE OF JOINTS.

ALL WATER MAIN FITTINGS FOR VALVES, FIRE HYDRANTS, TEES, CROSSES, DEAD ENDS, BENDS, AND VERTICAL REALIGNMENTS TO INCORPORATE MEG-A-LUG RESTRAINT OR C.O.S. APPROVED EQUIVALENT. DEFLECTIONS AT WATER MAIN JOINTS ARE NOT TO EXCEED MANUFACTURERS RECOMMENDATIONS.

BLUE STAKE, INC.
602-263-1100
1-800-STAKE-IT
(ARIZONA ONLY)

NO.	REVISION	BY	DATE	APPR.
1	QUANTITY UPDATE PER REVISIONS	ACF	1/27/07	PEL

Kimley-Horn and Associates, Inc.
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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

SCALE (H): NONE
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 11-27-07

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GENERAL NOTES
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil)
Certificate No. 31965
JOSHUA G. SANDERS
Date Signed 11/27/07
ARIZONA, U.S.A.

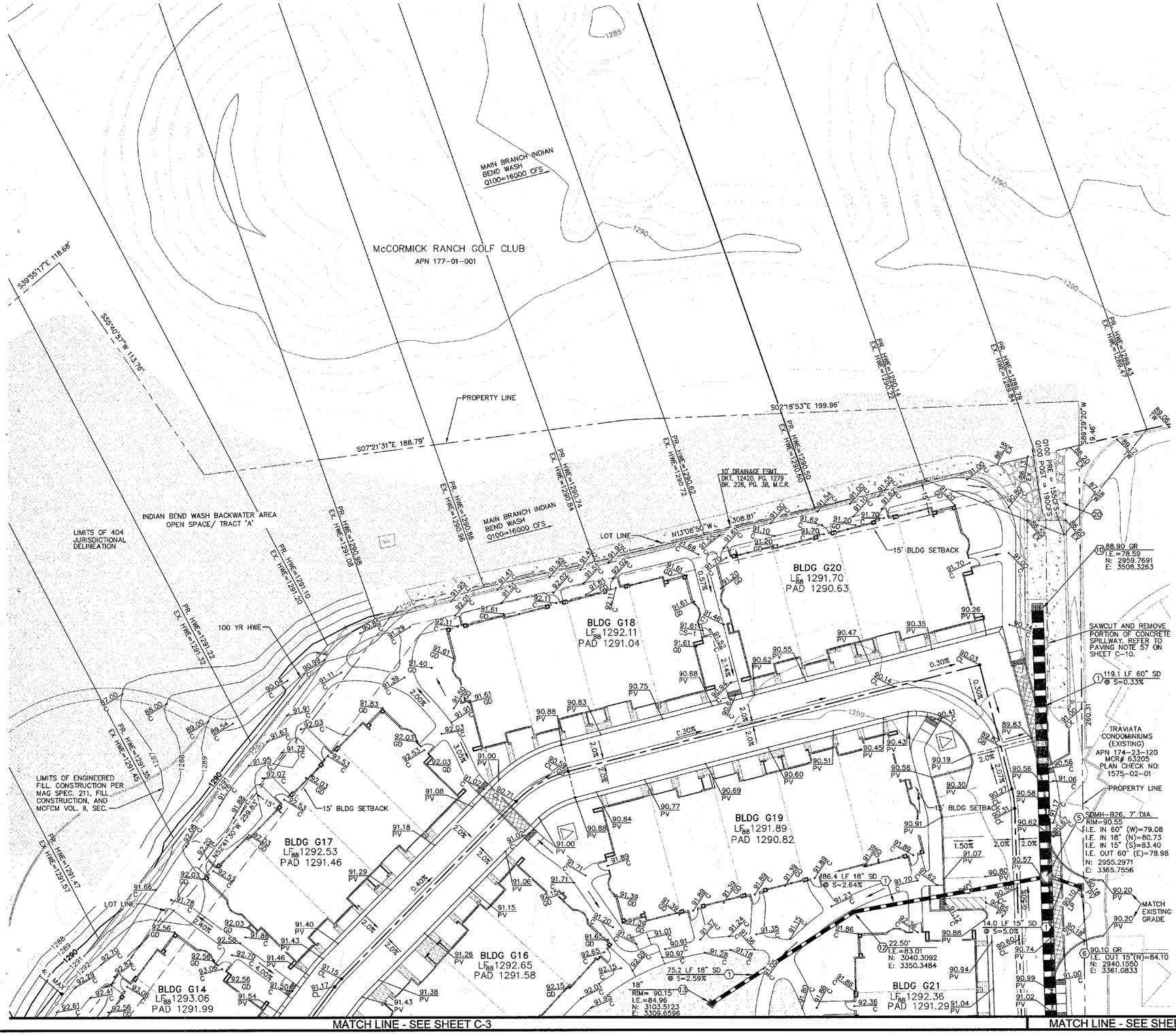
PROJECT NO.
091505008

DRAWING NAME
505008NT01

C-0.1

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1 1098-06-18

K:\EAV_Civil\091505008\CADD\Working Drawings\505008NT01.dwg Nov 27, 2007 andrew.finnson
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LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

(1) INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).

(5) INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.

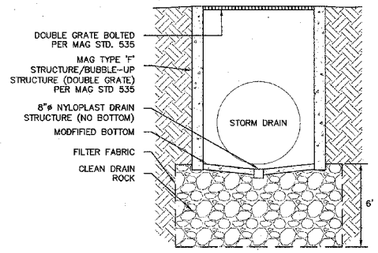
(6) INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.

(10) INSTALL BUBBLE-UP STRUCTURE PER DETAIL ON PAGE C-1.

(12) INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.

(13) INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)

(20) INSTALL 70.5 SY RIP-RAP, D50= 12".



BUBBLE-UP STRUCTURE DETAIL
NOT TO SCALE

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. II. SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR.

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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 06-12-07

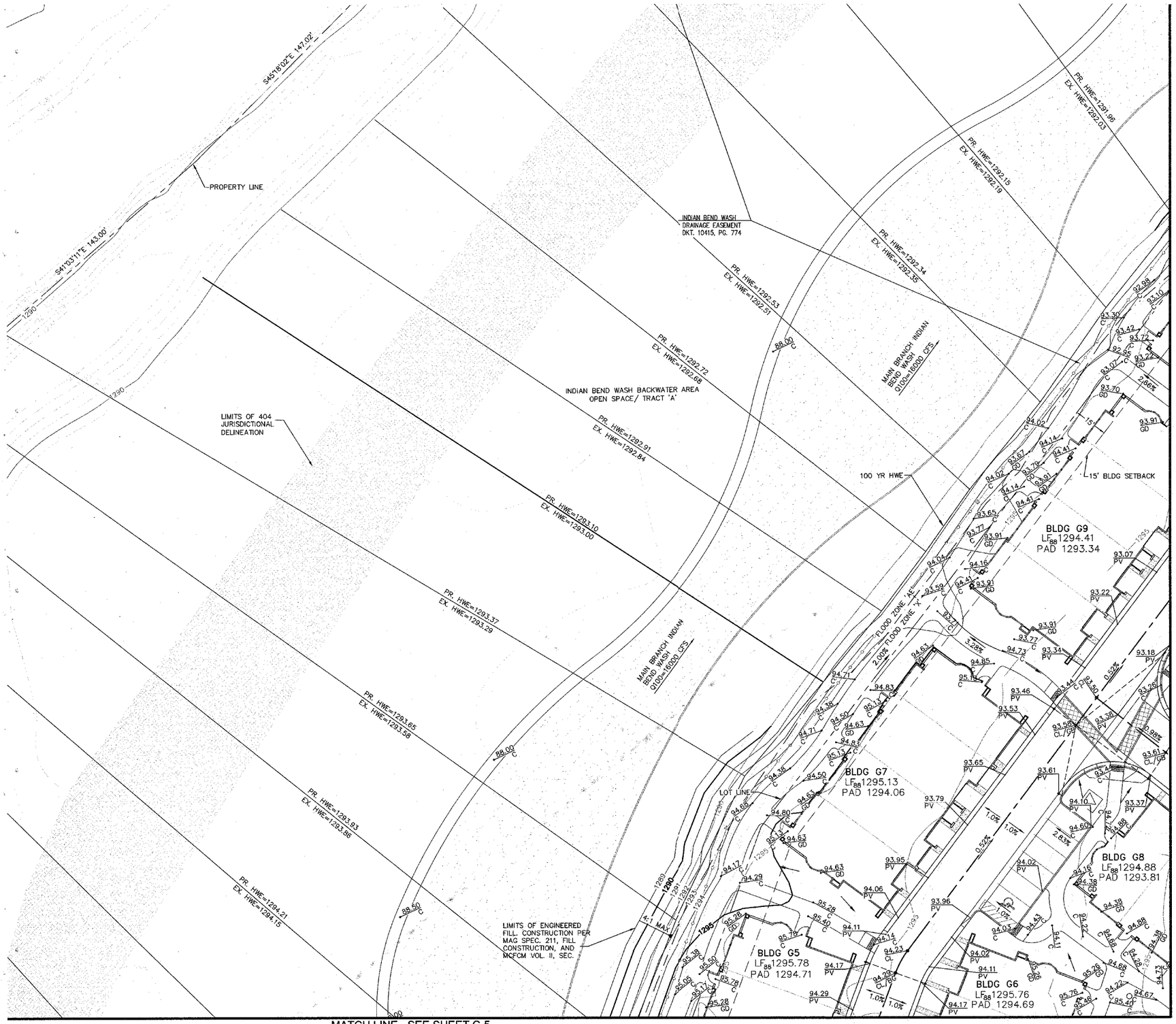
STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil) CERTIFICATE NO. 30886 MICHAEL L. DELMARTER
My Signature Expires 9-30-08 USA

PROJECT NO. 091505008
DRAWING NAME 505008GD01
C-1

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1

K:\C_Civil\091505008\CAD\Working Drawings\505008GD01.dwg Jun 29, 2007 andrew.firnson
XREF: 505008XB01 505008XB02 505008XB03 505008XB04 505008XB05
THESE PLANS ARE FOR USE IN THE CITY OF SCOTTSDALE ONLY AND SHALL NOT BE USED FOR ANY OTHER PROJECT. NEITHER THE PLANS NOR ANY PART OF THEIR DOCUMENT TAKE EFFECT WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHOM IT WAS PREPARED. REUSE OF ANY PORTION OF THESE PLANS AND DOCUMENTS SHALL BE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. FOR THE SPECIFIC PROJECT SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO KIMLEY-HORN AND ASSOCIATES, INC.



LEGEND

95.00	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 GD	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 PV	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE STEPS)
95.00 CS-#	# DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

NOTES:

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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

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NO.	REVISION	BY	DATE	APPR.

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Phoenix, Arizona 85020 (602) 944-5500

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SCALE (V): NONE
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DRAWN BY: AMM
CHECKED BY: PL
DATE: 06-12-07

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil)
CERTIFICATE NO.
30886
MICHAEL L. DELMARTER
Expires 6/30/07

PROJECT NO.
091505008

DRAWING NAME
505008GD01

C-2

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1

K:\Civ\091505008\CADD\Working Drawings\505008GD01.dwg Jun 25, 2007 andrew.finnson
XREF: 505008XB01.dwg, 505008XB02.dwg, 505008XB03.dwg, 505008XB04.dwg, 505008XB05.dwg
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MATCH LINE - SEE SHEET C-1

MATCH LINE - SEE SHEET C-2

MATCH LINE - SEE SHEET C-4

MATCH LINE - SEE SHEET C-6

BLDG G14
LF$_{88}$1293.06
PAD 1291.99

BLDG G16
LF$_{88}$1292.65
PAD 1291.58

BLDG G21
LF$_{88}$1292.36
PAD 1291.29

BLDG G11
LF$_{88}$1293.72
PAD 1292.65

BLDG G15
LF$_{88}$1293.95
PAD 1292.88

BLDG G13
LF$_{88}$1293.94
PAD 1292.87

BLDG G12
LF$_{88}$1293.92
PAD 1292.85

BLDG G10
LF$_{88}$1294.93
PAD 1293.86

BLDG G8
LF$_{88}$1294.88
PAD 1293.81

BLDG C4
LF$_{88}$1295.00
GF 1284.00
PAD 1283.33

LOT LINE

PR. HWE=1291.77
EX. HWE=1291.66

S59°41'30"E 427.67'

S37°20'16"W 583.38'

53.3 LF 36" SD @ S=1.70%

36"x10" WYE
I.E.=82.38
N: 3005.6880
E: 3093.9718

25.0 LF 10" SD @ S=18.09%

22.10 LF 10" SD @ S=18.09%

11.25'
I.E.=86.38
N: 2995.3975
E: 3074.4392

I.E.=90.90
N: 2979.5223
E: 3055.0996

SDMH-D1, 5' DIA.
RIM=93.08
I.E. IN 8" (SW)=86.32
I.E. IN 30" (NW)=85.19
I.E. OUT 36" (SE)=84.99
N: 3141.4685
E: 3022.4374

153.5 LF 36" SD @ S=1.70%

28.0 LF 8" SD @ S=16.71%

I.E.=91.00
N: 3123.6995
E: 3000.7908

30"x10" WYE
I.E.=85.38
N: 3178.7863
E: 2991.8044

48.3 LF 30" SD @ S=0.39%

18"
RIM=92.00
I.E.=88.26
N: 3238.7655
E: 3024.8847

63.6 LF 18" SD @ S=4.37%

25.4 LF 30" SD @ S=0.39%

71.2 LF 30" SD @ S=0.39%

30"x10" WYE
I.E.=85.76
N: 3253.4218
E: 2930.5386

53.9 LF 30" SD @ S=0.39%

30"x18" WYE
I.E.=85.48
N: 3198.3969
E: 2975.7067

29.4 LF 10" SD @ S=15.78%

I.E.=90.40
N: 3235.6528
E: 2908.8921

30"x8" WYE
I.E.=85.97
N: 3295.0891
E: 2896.3353

41.4 LF 30" SD @ S=0.39%

SDMH-D16, 4' DIA.
RIM=93.64
I.E. IN 30" (NW)=86.33
I.E. OUT 30" (SE)=86.13
N: 3327.0621
E: 2870.0898

29.4 LF 8" SD @ S=17.11%

I.E.=91.00
N: 3277.3202
E: 2874.6887

29.4 LF 10" SD @ S=17.07%

I.E.=90.40
N: 3161.0173
E: 2970.1578

24"
RIM=94.20
I.E.=86.76
N: 2980.6634
E: 2863.0635

30.3 LF 24" SD @ S=1.38%

LEGEND

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95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

(1) INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).

(2) STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.

(5) INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.

(6) INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.

(11) INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.

(12) INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.

(13) INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)

NOTES:

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3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR.

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Phoenix, Arizona 85020 (602) 944-5500

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SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 06-12-07

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil)
CERTIFICATE NO.
30686
MICHAEL L. DELMARTER
06-30-08
STATE OF ARIZONA

PROJECT NO.
091505008

DRAWING NAME
505008GD01

C-3

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1

K:\S_Civil\091505008\CADD\Working Drawings\505008GD01.dwg Jun 25, 2007 andrew.finnson
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MATCH LINE - SEE SHEET C-1

MATCH LINE - SEE SHEET C-3

MATCH LINE - SEE SHEET C-7

S00°30'40"E 425.00'

PROPERTY LINE

N89°29'20"E 630.76'

N89°29'20"E 1240.14'

S89°29'20"W 776.00'

15' BLDG SETBACK

BLDG L1
LF88 1293.51
PAD 1292.44

BLDG L2
LF88 1294.01
PAD 1292.94

BLDG L3
LF88 1294.58
PAD 1293.51

BLDG L4
LF88 1295.28
PAD 1294.21

BLDG L5
LF88 1295.81
PAD 1294.74

BLDG C4
LF88 1295.00
GF 1284.00
PAD 1283.33

BLDG CH2
LF88 1295.00
PAD 1294.29

BLDG C5
LF88 1295.50
GF 1284.50
PAD 1283.83

TRAVIATA CONDOMINIUMS (EXISTING)
APN 174-23-120
MCR# 63205
PLAN CHECK NO: 1575-02-01

206.2 LF 60" SD @ S=0.33%

41.8 LF 42" SD @ S=1.90%

170.2 LF 42" SD @ S=1.90%

47.6 LF 12" SD @ S=1.00%

155.0 LF 42" SD @ S=0.33%

154.6 LF 36" SD @ S=0.33%

105.2 LF 24" SD @ S=0.28%

61.1 LF 8" SD @ S=7.32%

41.9 LF 36" SD @ S=1.22%

25.0 LF 8" SD @ S=21.97%

13.6 LF 8" SD @ S=21.97%

48 LF 8" SD @ S=1.00%

28.4 LF 12" SD @ S=3.42%

113.7 LF 24" SD @ S=0.30%

45.2 LF 24" SD @ S=0.29%

25.6 LF 24" SD @ S=0.29%

24.0 LF 24" SD @ S=0.29%

13.1 LF 8" SD @ S=12.00%

6.5 LF 6" SD @ S=82.46%

29.7 LF 24" SD @ S=0.29%

23.0 LF 24" SD @ S=0.29%

22.50' @ S=85.91%

23.5 LF 24" SD @ S=0.29%

13.1 LF 24" SD @ S=0.29%

39.9 LF 24" SD @ S=0.29%

SDMH-B25, 7' DIA.
RIM=92.02
I.E. IN 42" (SW)=80.51
I.E. IN 36" (NW)=80.76
I.E. OUT 60" (E)=79.76
N: 2948.8236
E: 3159.6205

SDMH-D20, 5' DIA.
RIM=93.00
I.E. IN 36" (NW)=81.47
I.E. OUT 36" (SE)=81.27
N: 2948.8236
E: 3159.6205

SDMH-B23, 5' DIA.
RIM=92.83
I.E. IN 42" (SW)=84.75
I.E. IN 12" (SE)=85.75
I.E. OUT 42" (NE)=84.55
N: 2738.2959
E: 3132.4296

SDMH-B22, 5' DIA.
RIM=93.68
I.E. IN 36" (W)=85.46
I.E. IN 24" (N)=85.46
I.E. OUT 42" (NE)=85.26
N: 2632.3799
E: 3019.2694

42"x8" WYE
I.E.=82.72
N: 2907.0278
E: 3154.3206

I.E.=88.21
N: 2910.2373
E: 3129.5820

I.E.=91.20
N: 2901.6018
E: 3119.0619

12" RIM=92.30
I.E.=86.22
N: 2702.5780
E: 3163.9288

8" RIM=94.10
I.E.=89.20
N: 2846.7173
E: 2992.6072

12" RIM=94.10
8" I.E.=88.72
12" I.E.=88.39
N: 2883.8184
E: 2962.1522

30" RIM=94.10
24" I.E.=86.42
12" I.E.=87.42
N: 2892.2658
E: 2935.6260

8" RIM=94.26
I.E.=87.59
N: 2806.8534
E: 2931.1744

8" RIM=94.26
I.E.=87.71
N: 2837.6360
E: 2905.8917

24" RIM=94.26
I.E.=86.29
N: 2863.6001
E: 2900.7047

90°
I.E.=86.21
N: 2847.3776
E: 2880.9420

I.E.=91.20
N: 2752.2274
E: 2955.8075

24"x6" WYE
I.E.=85.84
N: 2748.1068
E: 2950.7862

22.50°
I.E.=85.98
N: 2788.4089
E: 2929.3474

11.25°
I.E.=85.75
N: 2725.1226
E: 2969.6530

24"x8" WYE
I.E.=86.14
N: 2829.3219
E: 2895.7633

24"x8" WYE
I.E.=86.02
N: 2798.5309
E: 2921.0373

I.E.=91.70
N: 2692.5019
E: 2864.2622

36"x8" WYE
I.E.=87.23
N: 2631.3933
E: 2864.6521

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
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I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

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11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.
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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

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SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 06-12-07

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (CERTIFICATE NO.) 30886 MICHAEL L. DELMARTER (Date) 6-25-07

PROJECT NO.
091505008

DRAWING NAME
505008GD01

C-4

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1

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MATCH LINE - SEE SHEET C-2

MATCH LINE - SEE SHEET C-6

MATCH LINE - SEE SHEET C-8

LEGEND

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95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

1. INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).
2. STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.
3. OUTLET PIPE AT RETAINING WALL (INVERT ELEVATION PER PLANS).
6. INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.
7. INSTALL SINGLE-WING CATCH BASIN PER MAG STD DET 533-1, TYPE D, (WING SIZE PER PLAN)
9. PROPOSED RETAINING WALL. REFER TO DETAIL 2 ON SHEET S-1 AND DETAILS ON SHEET S-2. REFER TO LANDSCAPE PLANS (PLAN CHECK NUMBER 1098-06-3) FOR HANDRAIL INFORMATION.
11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.
13. INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)
17. INSTALL 5'x5' GROUTED RIP-RAP PAD, D_{50} = 6".

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. 11. SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

CALL BLUE STAKE, INC. 602-263-1100 1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR.
1	REMOVAL OF WALL	ACF	11/27/07	PEL

Kimley-Horn and Associates, Inc.
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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer (Civil) CERTIFICATE NO. 41965 JOSHUA G. SANDERS Date Signed 11/27/07 ARIZONA, U.S.A.

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 11-27-07

PROJECT NO. 091505008
DRAWING NAME 505008GD01
C-5

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1 1 1098-06-18

K:\PV_Civil\091505008\CADD\Working Drawings\505008GD01.dwg, Nov 27, 2007 andrew.finson

THESE DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF KIMLEY-HORN AND ASSOCIATES, INC. THESE DRAWINGS AND SPECIFICATIONS ARE TO BE USED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH THEY WERE PREPARED. REUSE OF AND IMPROPER RELIANCE ON THESE DOCUMENTS WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

MATCH LINE - SEE SHEET C-3

MATCH LINE - SEE SHEET C-5

MATCH LINE - SEE SHEET C-7

MATCH LINE - SEE SHEET C-8

MATCH LINE - SEE SHEET C-9

BLDG C2
LF$_{88}$1295.00
GF 1284.00
PAD 1283.33

BLDG CH1
LF$_{88}$1295.50
PAD 1294.79

BLDG C3
LF$_{88}$1295.50
GF 1284.50
PAD 1283.83

SDMH-D17, 5' DIA.
RIM=94.01'
I.E. IN 30" (NW)=86.95
I.E. IN 10" (SW)=87.52
I.E. OUT 30" (SE)=86.75
N: 3420.7172
E: 2814.2941

SDMH-D11, 4' DIA.
RIM=94.57
I.E. IN 30" (W)=87.65
I.E. IN 8" (SW)=88.37
I.E. OUT 30" (SE)=87.45
N: 3476.4864
E: 2705.5445

SDMH-C1, 4' DIA.
RIM=95.25
I.E. IN 18" (NW)=89.68
I.E. OUT 24"(NE)=89.48
N: 3453.3509
E: 2434.3374

LEGEND

95.00	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 AP	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 PV	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GR	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 GT	PROPOSED SPOT ELEVATION (GUTTER)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

1. INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).
2. STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.
4. INSTALL NYLOPLAST INLINE DRAIN. (SIZE AS NOTED ON PLANS)
5. INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.
6. INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.
7. INSTALL SINGLE-WING CATCH BASIN PER MAG STD DET 533-1, TYPE D. (WING SIZE PER PLAN).
8. CONSTRUCT CURB OPENING PER CURB OPENING DETAIL ON PAGE C-8.
11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BLND ANGLE PER PLANS.
13. INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211, FILL CONSTRUCTION, AND MCFCM VOL. 11, SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APP'D
2	PARKING AREA GRADING AND PAVING	DH	10/21/08	
1	REVISIONS.			

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1255 West Rosefina Road, Suite 250
Mesa, Arizona 85202 (480) 755-4444

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: BG
DATE: 04/9/10

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer
CERTIFICATE NO.
047853
HEATHER HIRSCHBERG
ARIZONA USA
Exp. Date: 03/31/11

PROJECT NO.
091505008
DRAWING NAME
5050080001

PLAN CHECK# 1098-06-2 D.R.# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 098-06-1

C-6

MATCH LINE - SEE SHEET C-4

MATCH LINE - SEE SHEET C-6

MATCH LINE - SEE SHEET C-9

BLDG C5
LF$_{88}$1295.50
GF 1284.50
PAD 1283.83

BLDG L10
LF$_{88}$1295.50
PAD 1294.43

BLDG L9
LF$_{88}$1295.60
PAD 1294.53

BLDG L8
LF$_{88}$1296.63
PAD 1295.56

BLDG L7
LF$_{88}$1296.78
PAD 1295.71

BLDG L6
LF$_{88}$1296.36
PAD 1295.29

TRAVIATA CONDOMINIUMS
(EXISTING)
APN 174-23-120
MCR# 63205
PLAN CHECK NO: 1575-02-01

EXISTING OFFICE BUILDING AREA
APN 174-23-005

PROPERTY LINE

15' BLDG SETBACK

5' BLDG SETBACK

N0°30'40"W 340.00'

N0°30'40"W 375.20'

S89°29'20"W 341.55'

N45°30'40"W 21.20'

S89°29'20"W 333.64'

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 G	PROPOSED SPOT ELEVATION (GUTTER)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

1. INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).
2. STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.
5. INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.
6. INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.
7. INSTALL SINGLE-WING CATCH BASIN PER MAG STD DET 533-1, TYPE D, (WING SIZE PER PLAN).
11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.
13. INSTALL NYLOPLAST CATCH BASIN. (SIZE AS NOTED ON PLANS)
18. INSTALL DOUBLE-WING CATCH BASIN PER MAG STD DET 533 1, TYPE D, (WING SIZE PER PLAN).
20. INSTALL TYPE 'G' DOUBLE GRATE CATCH BASIN PER MAG STD DET 537.

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-08-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211, FILL CONSTRUCTION, AND MCFCM VOL. 11, SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

2 PARKING AREA GRADING AND PAVING — DH 10/21/08

NO.	REVISION	BY	DATE	APPR.

Kimley-Horn and Associates, Inc.
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1235 West Broadway Road, Suite 258
Mesa, Arizona 85202 (480) 759-4444

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: SG
DATE: 04/19/10

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer
CERTIFICATE NO.
047693
HEATHER HIRSCHBERG
Date Signed 09/30/10
ARIZONA, USA
Expires 09/30/11

PROJECT NO.
091505008
DRAWING NAME
505008GD01

C-7

PLAN CHECK# 1098-06-2 DR# 8-ZR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLAN# 1098-06-1

602-263-1100
1-800-STAKE-IT

MATCH LINE - SEE SHEET C-5

MATCH LINE - SEE SHEET C-6

MATCH LINE - SEE SHEET C-9

EXISTING BUILDING

BLDG C1
LF$_{88}$1295.50
GF 1284.50
PAD 1283.83

BLDG LW2
LF$_{88}$1296.24
PAD 1295.17

BLDG A
LF$_{88}$1297.50
PAD 1296.83

DRAINAGE EASEMENT

PR. HWE=1294.13

LIMITS OF ENGINEERED FILL, CONSTRUCTION PER MAG SPEC. 211, FILL CONSTRUCTION, AND MCFCM VOL. II, SEC. 8.3.3.

EXISTING DRAINAGE EASEMENT
DKT. 10415, PG. 774
DKT. 10422, PG. 620
TO BE ABANDONED

PROPERTY LINE

LIMITS OF EXCAVATION

LIMITS OF 404 JURISDICTIONAL DELINEATION

LIMITS OF CUT

MUMMY MOUNTAIN WASH PRE-#699 CFS Q100 POST-#699 CFS

FLOOD ZONE 'X'
FLOOD ZONE 'AE'

15' BLDG SETBACK

25' BLDG SETBACK

EXISTING HEADWALL
REFER TO S-1 AND S-2 FOR CONNECTION DETAIL

EXISTING BOX CULVERT
I.E.: 90.37

EXISTING BOX CULVERT
I.E.: 90.95

EXISTING 5' SIDEWALK

EXISTING 65' ROADWAY EASEMENT
DKT. 10843, PG. 570
ROAD MAP BK 13, PG. 57

75' ROW

PUBLIC ACCESS EASEMENT

SCOTTSDALE ROAD

720.00'

N00°30'40"W 2641.06'

N00°30'40"W 820.06'

S62°10'22"W 11.26'

N62°10'22"E 65.46'

S89°03'25"E 40.01'

480 LF

154 LF 18" SD
@ S=0.50%

119.1 LF 18" SD
@ S=0.33%

71.8 LF 18" SD
@ S=0.37%

57.8 LF 8" SD
@ S=1.45%

45.60 LF 12" SD
@ S=0.35%

15.0 LF 8" SD
@ S=2.53%

10.0 LF 8" SD
@ S=1.50%

79.4 LF 18" SD
@ S=0.37%

12.9 LF 8" SD
@ S=4.95%

12.9 LF 8" SD
@ S=2.87%

9.8 LF 18" SD
@ S=0.37%

SDMH-E1, 4' DIA.
RIM=94.65
I.E. IN 12" (NE)=90.93
I.E. OUT 18"(SE)=90.73
N: 3696.2729
E: 2294.9386

94.80 GR,
I.E. OUT 8" (NE)=90.80
N: 3620.9339
E: 2323.2565

94.80 GR
I.E. OUT 8" (NE)=90.80
N: 3558.7326
E: 2358.9998

I.E.=92.40
N: 3636.0227
E: 2397.2717

I.E.=91.32
N: 3753.8937
E: 2391.4458

I.E.=91.70
N: 3741.0172
E: 2399.1397

I.E.=92.25
N: 3631.0455
E: 2388.5983

I.E.=90.16
N: 3565.1497
E: 2370.1826

I.E.=90.43
N: 3627.3725
E: 2334.4766

I.E.=90.12
N: 3556.6756
E: 2375.0454

I.E.=89.65
N: 3471.4293
E: 2080.7538

18"x8" WYE

18"x10" WYE

12"x8" WYE

90°

TW=95.0
TF=89.5

TW=01.17
BW=95.17

TW=02.20
BW=96.20

TW=01.98
BW=95.98

TW=99.80
BW=96.80

TW=99.40
BW=96.40

TW=99.50
BW=96.50

TW=99.00
BW=95.00

GD=90.90

GD=90.20

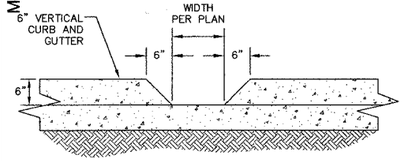
GD=90.40

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

1. INSTALL ADS N-12 HDPE STORM DRAIN OR APPROVED EQUAL (LENGTH AND SIZE AS NOTED ON PLANS).
2. STUB AND CAP PER MANUFACTURER'S SPECIFICATIONS.
3. OUTLET PIPE AT RETAINING WALL (INVERT ELEVATION PER PLANS).
5. INSTALL MANHOLE, DIAMETERS AS NOTED ON PLANS. 48"ø TO BE PER MAG STD DETAIL NO. 520 AND 522. 60"ø AND LARGER TO BE PER MAG STD DETAIL NO. 521 AND 522.
6. INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.
9. PROPOSED RETAINING WALL. REFER TO DETAIL 2 ON SHEET S-1 AND DETAILS ON SHEET S-2. REFER TO LANDSCAPE PLANS (PLAN CHECK NUMBER 1098-06-3) FOR HANDRAIL INFORMATION.
11. INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.
12. INSTALL ADS BEND FITTING OR APPROVED EQUIVALENT. BEND ANGLE PER PLANS.
16. CONSTRUCT CURB OPENING PER CURB OPENING DETAIL ON PAGE C-8 AND SPILLWAY PER MAG STD. DET. 550, WIDTH PER PLANS.
17. INSTALL 5'x5' GROUTED RIP-RAP PAD, D$_{50}$= 6".
19. INSTALL 1.5'x0.67' OPENING IN WALL. ELEVATION PER PLANS.



CURB OPENING DETAIL "A"
N.T.S.

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. 11. SEC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO.	REVISION	BY	DATE	APPR
1	REMOVAL OF WALL, STORM REVISION	JAC	11/27/07	PEL

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7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS GRADING & DRAINAGE CITY OF SCOTTSDALE

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: PL
DATE: 11-27-07

Registered Professional Engineer
41965
JOSHUA G. SANDERS
Date Signed: 11/27/07
ARIZONA, U.S.A.

PROJECT NO.
091505008

DRAWING NAME
505008GD01

C-8

PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1-GP-2005 NATIVE PLANT# 1098-06-1 1098-06-18

K:\PHX_Civil\091505008\Grading\505008GD01.dwg Nov 27, 2007 andrew.finson
XREFs: ...\Survey\091505008_TOPO.dwg, 091505008_BOUNDARY.dwg, 091505008_ALTA.dwg
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

MATCH LINE - SEE SHEET C-6

MATCH LINE - SEE SHEET C-7

MATCH LINE - SEE SHEET C-8

BLDG LW1
LF$_{88}$1295.83
PAD 1294.76

BLDG L13
LF$_{88}$1295.27
PAD 1294.20

LF$_{88}$1297.50
PAD 1296.83

BLDG B
LF$_{88}$1297.50
PAD 1296.83

MATCH TO EXISTING CURB

PROPERTY LINE

15' BLDG SETBACK

S89°29'22"W 333.64'

S05°23'33"W 282.15'

N05°23'03"E 282.15'

EXISTING OFFICE BUILDING AREA APN 174-23-005

MATCH EXISTING

S78°10'54"W 76.48'

18" x12" WYE
I.E.=90.11
N: 3318.3143
E: 2097.0973

95.53 GR 3' WING
I.E.=90.28
N: 3262.4424
E: 2102.8340

56 LF 18" SD
@ S=0.30%

18 LF 12" SD
@ S=1.00%

95.65 GR
I.E.OUT 12" (SL)=90.54
N: 3093.6797
E: 2411.3613

BLDG SETBACK

N00°30'40"W 820.06'

PUBLIC ACCESS EASEMENT

EXISTING 65' ROADWAY EASEMENT
BK. 1084, PG. 570
ROAD MAP BK 13, PG. 57

1' VNAE

75' ROW

SCOTTSDALE ROAD

PROPERTY LINE

N00°30'40"W 2641.06'

LEGEND

95.00 GD	PROPOSED SPOT ELEVATION (FINISHED GRADE)
95.00 PV	PROPOSED SPOT ELEVATION (ASPHALT PAVING)
95.00 C	PROPOSED SPOT ELEVATION (CONCRETE)
95.00 CS-#	PROPOSED SPOT ELEVATION (CONCRETE STEPS) # DENOTES NUMBER OF STEPS
95.00 HP	PROPOSED SPOT ELEVATION (HIGH POINT)
95.00 LP	PROPOSED SPOT ELEVATION (LOW POINT)
95.00 P	PROPOSED SPOT ELEVATION (PAVERS)
95.00 CL	PROPOSED SPOT ELEVATION (CENTER LINE)
95.00 GB	PROPOSED SPOT ELEVATION (GRADE BREAK)
95.00 TW	PROPOSED SPOT ELEVATION (TOP OF WALL)
95.00 G	PROPOSED SPOT ELEVATION (GUTTER)
95.00 EX	EXISTING SPOT ELEVATION
I.E.	INVERT ELEVATION OF STORM DRAIN PIPE
PR. HWE	PROPOSED 100 YEAR HIGH WATER ELEVATION
EX. HWE	EXISTING 100 YEAR HIGH WATER ELEVATION

DRAINAGE NOTES

(6) INSTALL CATCH BASIN & GRATE PER MAG STD DET 535.

(7) INSTALL SINGLE-WING CATCH BASIN PER MAG STD DET 533-1, TYPE B, (WING SIZE PER PLAN).

(11) INSTALL ADS WYE FITTING OR APPROVED EQUIVALENT.

(15) CONSTRUCT WEEPHOLES IN SCREEN WALL. REFER TO LANDSCAPE PLAN FOR MORE INFORMATION.

NOTES:

1. ADD 1200 TO ALL ELEVATIONS.
2. SEE SEWER PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PLUMBING PLANS (PLAN CHECK NUMBER 1098-06-3) FOR PLAZA DRAINAGE CONTINUATION.
4. FILL WITHIN INDIAN BEND WASH AND MUMMY MOUNTAIN WASH TO BE PER MAG SPEC. 211. FILL CONSTRUCTION, AND MCFCM VOL. 11. SLC. 8.3.3.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

602-263-1100
1-800-STAKE-IT

NO	REVISION	BY	DATE	APPR.
1	GRADING REVISIONS	AC	11/27/07	PL
2	PARKING AREA GRADING AND PAVING REVISIONS.	DH	10/21/05	

Kimley-Horn and Associates, Inc.
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1285 West Baseline Road, Suite 285
Mesa, Arizona 85202 (480) 756-4444

SCALE (H): 1"=20'
SCALE (V): NONE
DESIGNED BY: AMM
DRAWN BY: AMM
CHECKED BY: BG
DATE: 04/19/0

STARPOINTE-ARTESIA
CIVIL ON-SITE CONSTRUCTION PLANS
GRADING & DRAINAGE
CITY OF SCOTTSDALE

Registered Professional Engineer
CERTIFICATE NO.
047693
HEATHER HIRSCHBERG
ARIZONA USA
Exp. Date 09/31/08

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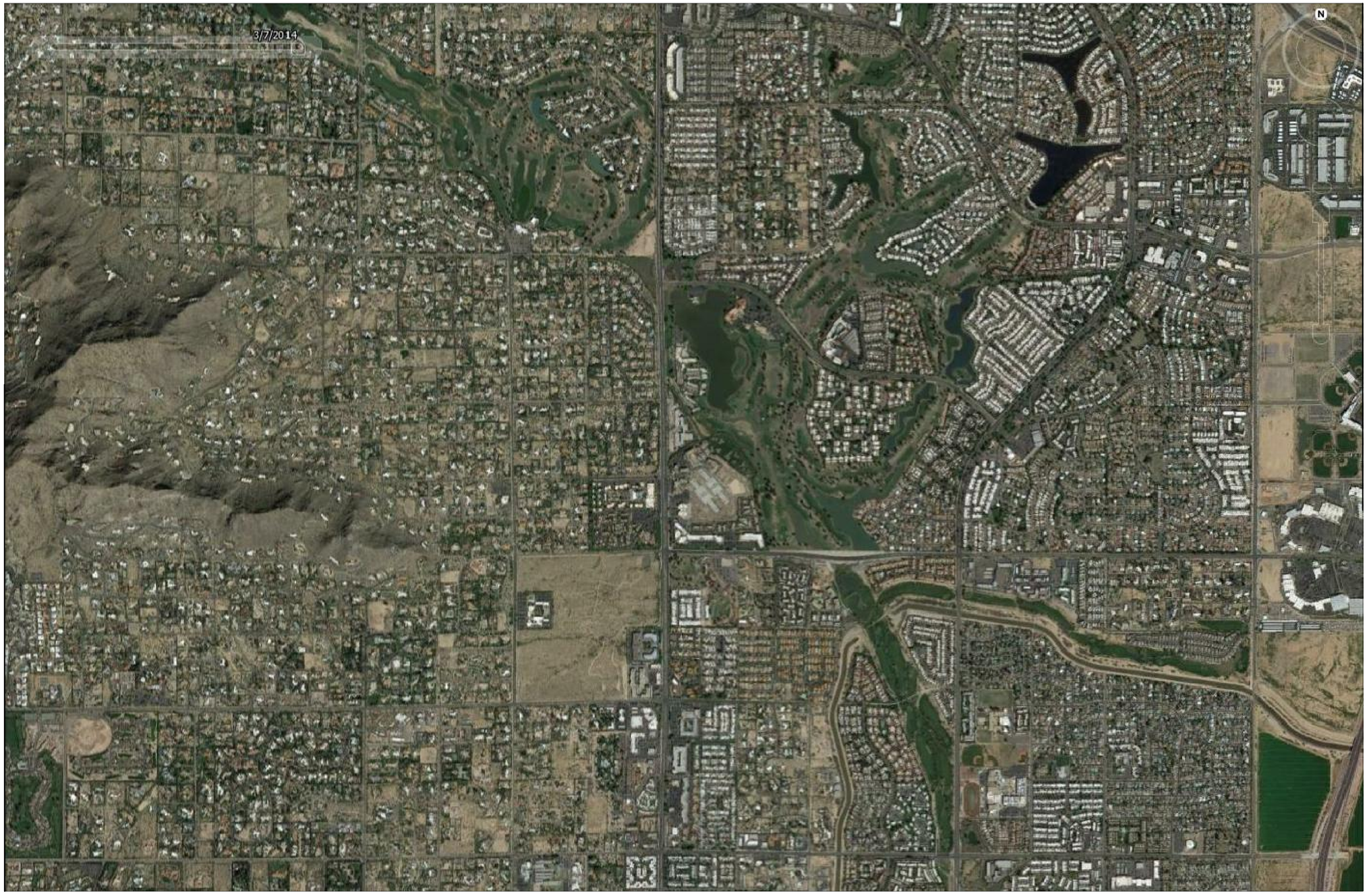
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PLAN CHECK# 1098-06-2 DR# 8-DR-2006 CASE# 2-ZN-2005 1st SUBMITTAL DATE 12-20-2005 NATIVE PLANE 1098-06-1

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Figure 5: Aerial Photograph, 800 Scale



K:\PHX_Civil\191675002 - SFI Artesia\Drainage\Aerial Exhibit.dwg Jun 17, 2014 matt.anderson
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XREFS: C:\Users\matt.anderson\Desktop\Temp\A-GAR A-TRASH ROOM GARAGE A-FP-1-1 A-FP-2-1 A-STAIR-1-GAR A-EP-5 A-STAIR-5 A-STAIR-6 X675002VF

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AERIAL PHOTOGRAPH (800 SCALE)

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Figure 6: Proposed On-Site Sub-Basins



Sub-Basin	Area (acres)	High Elev	Low Elev	Drainage Length	Q_2	Q_{10}	Q_{50}	Q_{100}	Concentration Point
A1	2.63	95.35	90.00	1082	3.8	7.1	10.3	12.0	4
A2	0.51	95.27	93.64	242	1.1	1.9	2.7	3.1	4
A3	0.15	94.60	94.00	170	0.3	0.6	0.8	0.9	4
A4	0.49	94.00	93.00	216	1.1	1.9	2.6	2.9	4
A5	0.23	93.50	92.60	164	0.5	0.9	1.2	1.4	4
A6	0.40	95.00	91.77	185	0.9	1.5	2.1	2.4	4
A7	0.57	95.00	94.00	271	1.1	2.1	3.0	3.4	4
A8	0.26	94.00	93.00	218	0.6	1.0	1.4	1.6	4
A9	0.72	93.00	92.40	292	1.3	2.3	3.5	4.1	4
A10	1.99	96.21	92.00	1250	2.6	4.7	7.0	8.1	4
A11	0.48	92.50	90.00	310	1.1	1.8	2.6	2.9	4
A12	1.45	93.20	92.40	45	3.4	5.5	7.7	8.7	4
A13	0.25	95.00	94.00	174	0.6	1.0	1.3	1.5	4
TOTAL					**18.4**	**32.2**	**46.3**	**53.1**	
B1	0.56	97.50	93.00	250	1.3	2.1	3.0	3.4	4
B2*	0.25	1.00	0.00	100	0.6	1.0	1.3	1.5	4
B3*	0.11	1.00	0.00	100	0.3	0.4	0.6	0.7	4
B4*	0.28	1.00	0.00	100	0.7	1.1	1.5	1.7	4
B5	0.29	94.50	92.50	236	0.7	1.1	1.5	1.7	4
B6	0.04	93.40	93.20	146	0.1	0.1	0.2	0.2	4
B7*	0.28	1.00	0.00	100	0.7	1.1	1.5	1.7	4
B8*	0.11	1.00	0.00	100	0.3	0.4	0.6	0.7	4
B9*	0.25	1.00	0.00	100	0.6	1.0	1.3	1.5	4
B10	1.02	96.00	94.50	264	2.3	3.9	5.4	6.1	4
B11	0.48	96.60	94.70	265	1.1	1.8	2.6	2.9	4
B12*	0.05	1.00	0.00	100	0.1	0.2	0.3	0.3	4
B13	0.30	95.30	92.80	115	0.7	1.1	1.5	1.8	4
B14	0.48	95.30	92.80	202	1.1	1.8	2.6	2.9	4
B15*	0.05	1.00	0.00	100	0.1	0.2	0.3	0.3	4
B16*	0.25	1.00	0.00	100	0.6	1.0	1.3	1.5	4
B17	1.26	93.64	90.89	115	2.9	4.8	6.7	7.6	4
B18	1.72	96.30	92.23	760	2.8	5.0	7.9	8.9	4
B19	0.07	93.08	92.43	82	0.2	0.3	0.4	0.4	4
TOTAL					**17.0**	**28.3**	**40.5**	**45.7**	
C1*	0.05	1.00	0.00	100	0.1	0.2	0.3	0.3	4
C2	0.12	96.30	95.27	60	0.3	0.5	0.6	0.7	4
C3*	0.22	1.00	0.00	100	0.5	0.8	1.2	1.3	4
C4	0.30	97.00	94.80	135	0.7	1.1	1.6	1.8	4
C5*	0.10	1.00	0.00	100	0.2	0.4	0.5	0.6	4
C6	0.23	97.00	94.80	150	0.5	0.9	1.2	1.4	4
C7	0.57	95.20	84.50	350	1.3	2.2	3.0	3.4	4
TOTAL					**3.7**	**6.0**	**8.5**	**9.6**	
D1*	0.11	1.00	0.00	100	0.3	0.4	0.6	0.7	4
D2*	0.28	1.00	0.00	100	0.7	1.1	1.5	1.7	4
D3	0.84	94.90	92.42	170	2.0	3.2	4.5	5.0	4
D4*	0.28	1.00	0.00	100	0.7	1.1	1.5	1.7	4
D5*	0.11	1.00	0.00	100	0.3	0.4	0.6	0.7	4
D6*	0.25	1.00	0.00	100	0.6	1.0	1.3	1.5	4
D7	0.19	95.00	93.55	120	0.4	0.7	1.0	1.1	4
D8	1.21	96.90	93.66	440	2.4	4.4	6.4	7.3	4
D9	0.25	96.00	93.45	240	0.6	1.0	1.3	1.5	4
D10*	0.05	1.00	0.00	100	0.1	0.2	0.3	0.3	4
D11	0.44	95.00	94.31	149	1.0	1.7	2.3	2.6	4
TOTAL					**9.0**	**15.0**	**21.4**	**24.1**	
					0.0	0.0	0.0	0.0	
E1*	0.05	1.00	0.00	100	0.1	0.2	0.3	0.3	4
E2*	0.05	1.00	0.00	100	0.1	0.2	0.3	0.3	4
E3*	0.05	1.00	0.00	100	0.1	0.2	0.3	0.3	4
TOTAL					**0.3**	**0.6**	**0.8**	**0.9**	
F1	0.73	95.78	93.54	241	1.7	2.8	3.9	4.4	3
F2	0.27	95.50	94.30	107	0.6	1.0	1.4	1.6	3
TOTAL					**2.3**	**3.8**	**5.3**	**6.0**	
H1	0.82	97.50	95.50	300	1.8	3.1	4.4	4.9	3
H2	0.09	96.90	95.70	80	0.2	0.3	0.5	0.5	3
TOTAL					**2.0**	**3.5**	**4.8**	**5.5**	
J1	0.91	97.50	94.40	150	2.1	3.5	4.8	5.5	3
					0.0	0.0	0.0	0.0	
CH1	2.06	95.50	94.10	852	2.6	4.7	7.2	8.4	4

* Drainage area includes only building roof, podium deck and garage area. Areas provided by MEP Engineer and not shown on plan.

LEGEND

- PROPERTY LINE
- SUB-BASIN BOUNDARY
- FLOW LINE
- STORM DRAIN
- CATCH BASIN
- BUBBLE-UP STRUCTURE
- STORM MANHOLE
- DRAINAGE POINT
- DIRECTION OF FLOW
- SUB-BASIN ID

GRAPHIC SCALE IN FEET
0 40 80 160

NORTH

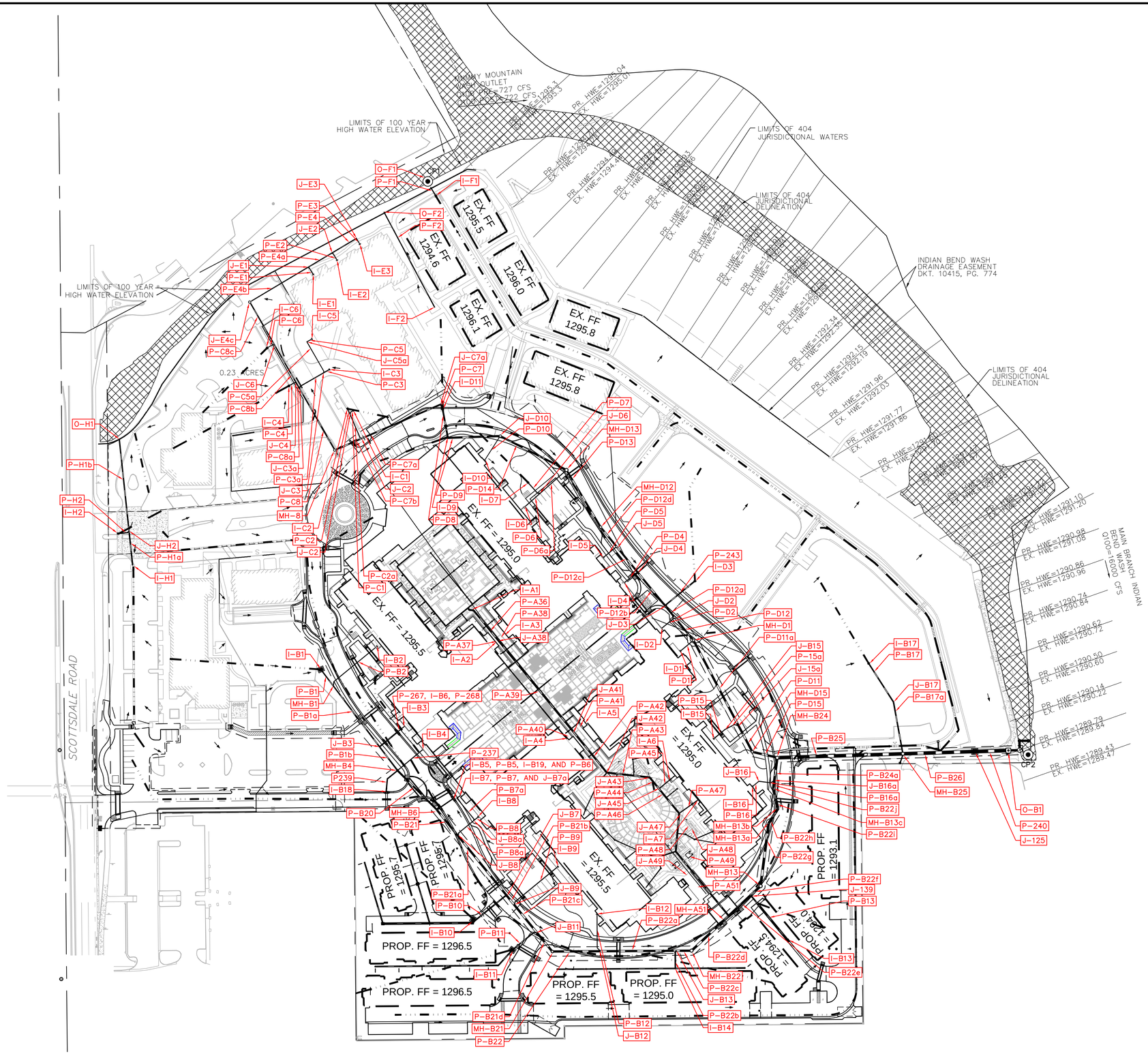
FIGURE 6: PROPOSED ONSITE SUB-BASINS

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Figure 7: Grading Exhibit



NOTES:
1. APPROXIMATE AREA OF DISTURBANCE IS 12.4 ACRES

Sub-Basin	Pipe ID	Diameter (in)	Q_{10} (cfs)	Q_{100} (cfs)
A	P-A36	24	2.1	3.8
	P-A37	8	0.0	0.0
	P-A38	8	0.1	0.2
	P-A39	24	2.2	4.0
	P-A40	8	0.0	0.0
	P-A41	8	0.1	0.2
	P-A42	24	2.4	4.2
	P-A43	24	2.4	4.2
	P-A44	24	2.4	4.2
	P-A45	8	1.2	2.1
	P-A46	24	3.5	6.3
	P-A47	8	1.2	2.1
	P-A48	24	4.7	8.4
	P-A49	24	4.7	8.4
	P-A51	24	4.7	8.4
	P-240	60	35.2	68.7
B	P-B1	18	2.1	3.4
	P-B1a	18	3.1	4.9
	P-B1b	18	8.0	13.1
	P-B2	10	1.0	1.5
	P-B5	24	1.1	1.7
	P-B6	36	1.4	2.1
	P-B7	10	1.1	1.7
	P-B7a	10	1.1	1.7
	P-B8	10	0.4	0.7
	P-B8a	10	1.5	2.4
	P-B9	10	1.0	1.5
	P-B12	8	0.2	0.3
	P-B13	18	1.1	1.8
	P-B15	10	0.2	0.3
	P-B16	8	1.0	1.5
	P-B16a	8	1.0	1.5
	P-B17	18	4.8	7.6
	P-B17a	18	4.8	7.6
	P-B20	30	14.1	23.7
	P-B21	36	15.5	25.8
	P-B21a	36	17.0	28.2
	P-B21b	36	20.9	34.3
	P-B21c	36	21.9	35.8
	P-B21d	36	23.7	38.7
	P-B22	36	23.7	38.7
	P-B22a	36	23.9	39.0
	P-B22b	12	1.8	2.9
	P-B22c	36	25.7	41.9
	P-B22d	42	25.7	41.9
	P-B22e	42	30.4	50.3
	P-B22f	42	31.5	52.1
	P-B22g	42	31.5	52.1
	P-B22h	42	31.5	52.1
	P-B22i	42	31.5	52.1
	P-B22j	42	31.5	52.1
	P-B24a	42	32.5	53.6
	P-B25	60	50.4	81.1
	P-B26	60	55.2	88.7
	P-15a	10	0.2	0.3
	P-237	10	1.1	1.7
	P-239	24	5.0	8.9
	P-267	8	0.4	0.7
	P-268	18	4.9	8.2

Sub-Basin	Pipe ID	Diameter (in)	Q_{10} (cfs)	Q_{100} (cfs)
C	P-C1	8	0.2	0.3
	P-C2	8	0.7	0.7
	P-C2a	8	0.9	1.0
	P-C3	10	0.8	1.3
	P-C3a	10	1.2	1.9
	P-C4	18	3.3	5.2
	P-C5	8	0.4	0.6
	P-C5a	8	0.4	0.6
	P-C6	8	0.9	1.4
	P-C7	24	6.9	10.4
	P-C7a	24	6.9	10.4
	P-C7b	24	6.0	9.4
	P-C8	18	6.0	9.4
	P-C8a	18	4.8	7.5
	P-C8b	18	1.5	2.3
	P-C8c	18	0.6	0.9
	P-C10	18	3.9	6.1
	P-C11	18	3.0	5.4
	P-C12	18	1.0	1.8
	P-C13	18	0.5	0.9
	P-C14	18	2.0	3.6
	P-C15	18	1.5	2.7
	P-C16	18	1.0	1.8
	P-C17	18	0.5	0.9
D	P-D1	8	0.4	0.7
	P-D2	10	1.1	1.7
	P-D4	10	1.1	1.7
	P-D5	8	0.4	0.7
	P-D6	12	1.0	1.5
	P-D6a	12	1.7	2.6
	P-D7	10	0.7	1.1
	P-D8	24	8.6	13.0
	P-D9	30	9.6	14.5
	P-D10	8	0.2	0.3
	P-D11	36	17.9	27.5
	P-D11a	36	17.7	27.2
	P-D12	30	17.3	26.5
	P-D12a	30	16.2	24.8
	P-D12b	30	13.0	19.8
	P-D12c	30	11.9	18.1
	P-D12d	30	11.5	17.4
	P-D13	30	11.5	17.4
	P-D14	30	9.8	14.8
	P-D15	36	17.9	27.5
	P-243	12	3.2	5.0
E	P-E1	8	0.2	0.3
	P-E2	8	0.2	0.3
	P-E3	8	0.2	0.3
	P-E4	12	0.2	0.3
	P-E4a	12	0.4	0.6
	P-E4b	12	0.6	0.9
F	P-F1	12	2.8	4.4
	P-F2	12	1.0	1.6
	P-F11	18	1.8	2.9
	P-F12	18	1.4	2.1
	P-F13	18	1.4	2.1
	P-F14	18	1.4	2.1
	P-F15	18	0.9	1.4
	P-F16	18	0.9	1.4
	P-F17	18	0.5	0.7
	P-F18	18	0.5	0.7
H	P-H1a	18	3.1	4.9
	P-H1b	18	4.1	4.9
	P-H2	12	1.0	0.0

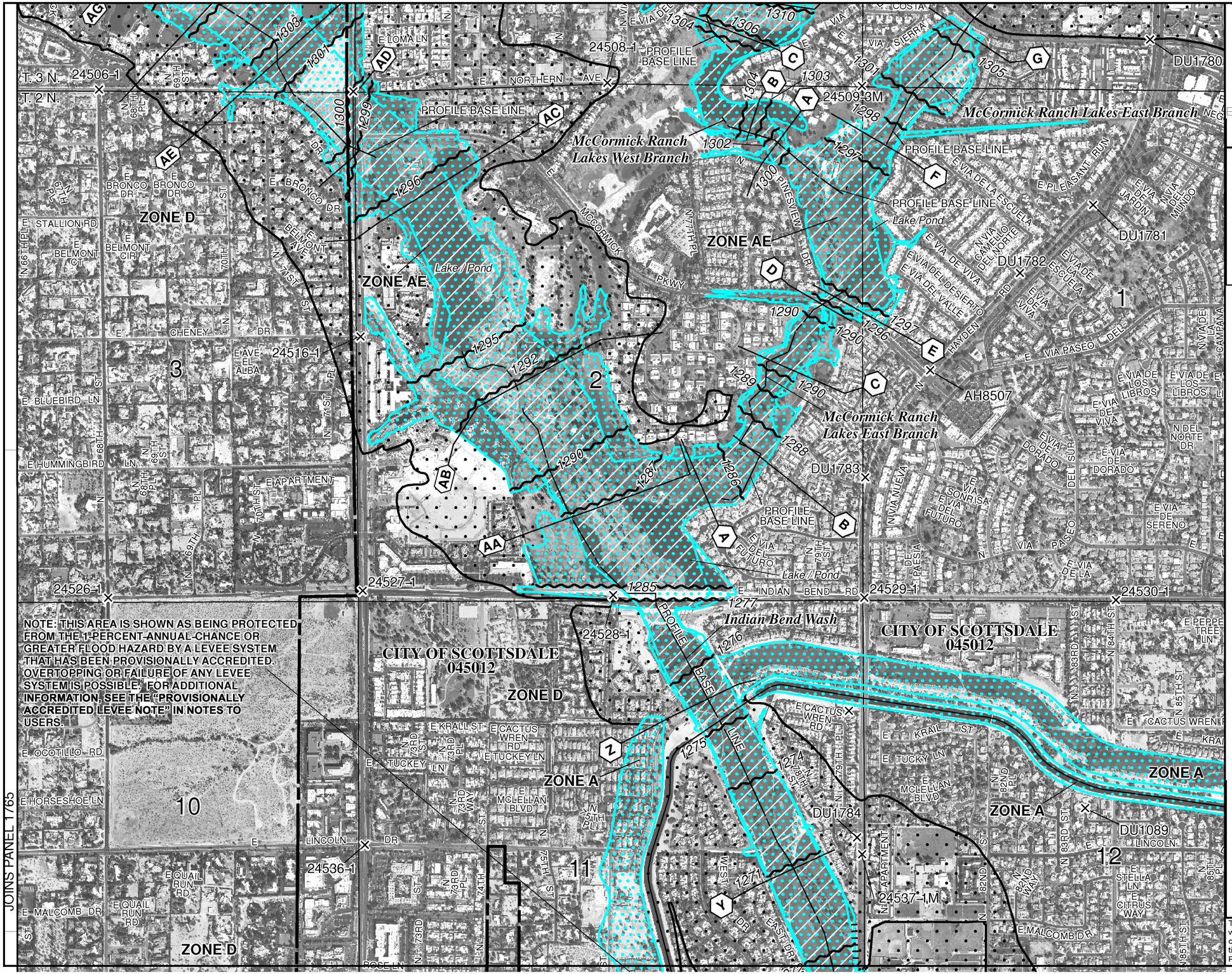
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FIGURE 7: PROPOSED GRADING PLAN

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Figure 8: FEMA FIRM Map



NOTE: THIS AREA IS SHOWN AS BEING PROTECTED FROM THE 1-PERCENT-ANNUAL-CHANCE OR GREATER FLOOD HAZARD BY A LEVEE SYSTEM THAT HAS BEEN PROVISIONALLY ACCREDITED. OVERTOPPING OR FAILURE OF ANY LEVEE SYSTEM IS POSSIBLE. FOR ADDITIONAL INFORMATION, SEE THE "PROVISIONALLY ACCREDITED LEVEE NOTE" IN NOTES TO USERS.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1770L

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 1770 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1770	L
PARADISE VALLEY, TOWN OF	040049	1770	L
SCOTTSDALE, CITY OF	045012	1770	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C1770L

MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

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Figure 9: Weighted “C” Calculation Exhibit (Original Condition)



Weighted 'C' Value - Original		
Surface Type	Area (SF)	Runoff Coefficient
Turf Landscape	585,494	0.3
Desert Landscape	183,378	0.45
Pavement	1,013,696	0.95
Weighted 'C' =		0.6851

LEGEND

TURF LANDSCAPE AREA

DESERT LANDSCAPE AREA

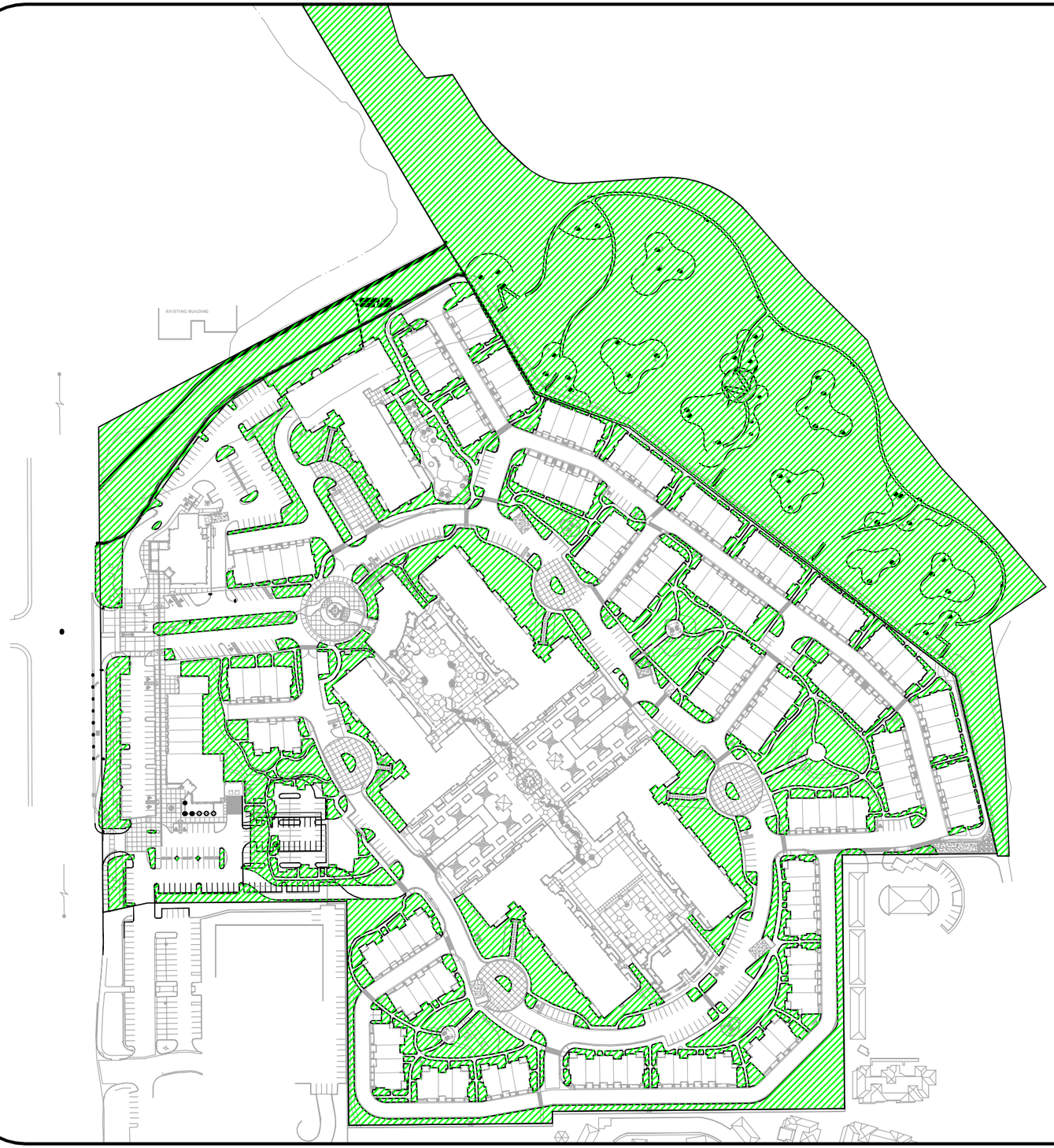
NORTH

FIGURE 9: WEIGHTED "C" CALCULATION EXHIBIT (ORIGINAL)

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Figure 10: Weighted “C” Calculation Exhibit (2006 Condition)



LEGEND

LANDSCAPE AREA

WEIGHTED "C" VALUE		
SURFACE TYPE	AREA (SF)	RUNOFF COEFFICIENT (C)
LANDSCAPING	821,000	0.31
IMPERVIOUS AREA	1,065,000	0.95
	Cw=	0.67

GRAPHIC SCALE IN FEET
0 100 200 400

NORTH

FIGURE 10: WEIGHTED "C" CALCULATION EXHIBIT (2006)

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Figure 11: Weighted “C” Calculation Exhibit (Proposed Condition)



Weighted 'C' Value - Proposed		
Surface Type	Area (SF)	Runoff Coefficient
Turf Landscape	417,058	0.3
Desert Landscape	307,808	0.45
Pavement	1,057,702	0.95
Weighted 'C' =		0.7116

LEGEND

TURF LANDSCAPE AREA

DESERT LANDSCAPE AREA

GRAPHIC SCALE IN FEET
0 100 200 400

NORTH

FIGURE 11: WEIGHTED "C" CALCULATION EXHIBIT (PROPOSED CONDITIONS)

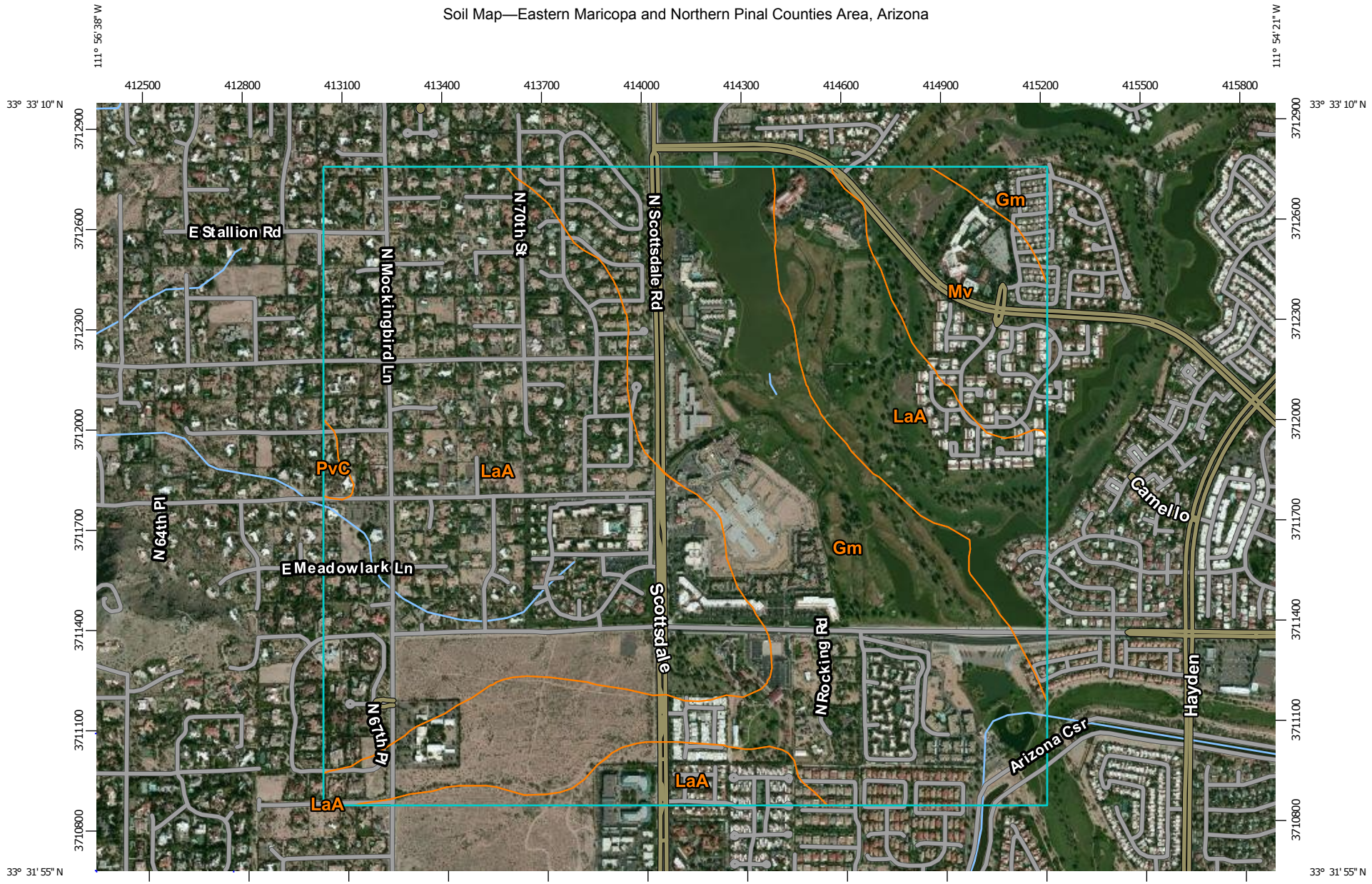
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XREFs: xVS–166007 xARCH–BM–166007 xBM–166007 Old Pervious Area Exhibit a xhs–pa3–166007 xhs–166007

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Figure 12: Soil Classification Map

Soil Map—Eastern Maricopa and Northern Pinal Counties Area, Arizona



Map Scale: 1:16,200 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eastern Maricopa and Northern Pinal Counties Area, Arizona
Survey Area Data: Version 6, Dec 15, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 1, 2010—Nov 27, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Eastern Maricopa and Northern Pinal Counties Area, Arizona (AZ655)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Gm	Gilman loam	394.7	38.2%
LaA	Laveen loam, 0 to 1 percent slopes	558.2	54.1%
Mv	Mohall loam MLRA 40	76.3	7.4%
PvC	Pinamt very gravelly loam, 3 to 5 percent slopes	3.2	0.3%
Totals for Area of Interest		**1,032.4**	**100.0%**

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Eastern Maricopa and Northern Pinal Counties Area, Arizona

Gm—Gilman loam

Map Unit Setting

Elevation: 1,080 to 1,600 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 72 to 74 degrees F
Frost-free period: 240 to 300 days

Map Unit Composition

Gilman and similar soils: 100 percent

Description of Gilman

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

Ap - 0 to 13 inches: moderately alkaline, loam
C - 13 to 60 inches: moderately alkaline, loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: B

Data Source Information

Soil Survey Area: Eastern Maricopa and Northern Pinal Counties Area, Arizona
Survey Area Data: Version 6, Dec 15, 2013

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Figure 13: Warning and Disclaimer of Liability Map

Appendix 4-1C

WARNING & DISCLAIMER OF LIABILITY

The Drainage and Floodplain Regulations and Ordinances of the City of Scottsdale are intended to "minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare which might result from flooding caused by the surface runoff of rainfall" (Scottsdale Revised Code §37-16).

As defined in S.R.C. §37-17, a flood plain or "*Special flood hazard* area means an area having flood and/or flood related erosion hazards as shown on a FHBM or FIRM as zone A, AO, A1-30, AE, A99, AH, or E, and those areas identified as such by the floodplain administrator, delineated in accordance with subsection 37-18(b) and adopted by the floodplain board." It is possible that a property could be inundated by greater frequency flood events or by a flood greater in magnitude than a 100-year flood. Additionally, much of the Scottsdale area is a dynamic flood area; that is, the floodplains may shift from one location to another, over time, due to natural processes.

WARNING AND DISCLAIMER OF LIABILITY PURSUANT TO S.R.C §37-22
"The degree of flood protection provided by the requirements in this article is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Floods larger than the base flood can and will occur on rare occasions. Floodwater heights may be increased by man-made or natural causes. This article (Chapter 37, Article II) shall not create liability on the part of the city, any officer or employee thereof, or the federal government for any flood damages that result from reliance on this article or any administrative decision lawfully made thereunder."

Compliance with Drainage and Floodplain Regulations and Ordinances does not insure complete protection from flooding. The Floodplain Regulations and Ordinances meet established local and federal standards for floodplain management, but neither this review nor the Regulations and Ordinances take into account such flood related problems as natural erosion, streambed meander or man-made obstructions and diversions, all of which may have an adverse affect in the event of a flood. You are advised to consult your own engineer or other expert regarding these considerations.

I have read and understand the above. If I am an agent for an owner I have made the owner aware of and explained this disclaimer.

		6/2/2017
Plan Check No.	Owner or Agent	Date

Kimley»Horn

Appendix D: Current Stormwater Storage Waiver

STORMWATER STORAGE WAIVER

Artesia

Prepared For:

STREET LIGHT RESIDENTIAL
5080 N. 40th Street, Suite 475
Phoenix, AZ 85018



Kimley»Horn

291743000
November 2022
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Kimley»Horn

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1. INTRODUCTION

This narrative has been prepared in support for a stormwater storage waiver for the proposed Artesia development located east of Scottsdale Road and north of Indian Bend Road in the City of Scottsdale, Arizona. The project is positioned in the southwest quarter of Section 2, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian in Maricopa County, Arizona. This parcel is bordered to the north by Mummy Mountain Wash and to the south by existing condominiums. The site is further bound on the east by McCormick Ranch Golf Club and Indian Bend Wash. It is bound on the west by Scottsdale Road.

The site was originally developed in the early 80's as a Radisson hotel and completely built out with a tennis complex and resort amenities. In 2005, the site was approved as 2-ZN-2005 for 480 residential units on 39+/- acres with an additional 5 acres of commercial property along the Scottsdale Road frontage. In 2007/2008, the project was engineered, platted and the onsite circulation system, utilities and drainage infrastructure was constructed in full. The commercial portion of the project was developed along with the luxury condos and townhomes but the main towers in the middle of the site and condominiums along the south and east boundary were never built due to the downturn of the economy.

In 2018, the site was planned to be redeveloped and a stormwater retention waiver was submitted and accepted by the City, but the redevelopment did not occur. This stormwater retention waiver follows the same methodology of that which was accepted in 2018. The weighted coefficient for the Radisson site prior to demolition was calculated using aerial imagery and current runoff coefficient per Scottsdale Design Standards and Policies Manual (DSPM). Then, the currently proposed Artesia development weighted coefficient was calculated using the current DSPM standards. Appendix A shows the current Artesia development plan with weighted runoff coefficients.

When comparing the new land use for the Artesia project to the original Radisson site, the proposed runoff coefficient for the site is slightly increased. The new runoff coefficient for the site has increased by 0.0437 which results in an additional 14,216 cf of stormwater storage volume required in order to maintain pre vs post runoff. The project is designed to convey all stormwater runoff to the adjacent Indian Bend Wash without negatively impacting any downstream properties (see Appendix A and B).

2. STORMWATER STORAGE REQUIREMENT CALCULATIONS

In order to determine the amount of stormwater storage required for the site, the procedures listed in Chapter 4-1.203C of the City DSMP were utilized. This involved determining the pre-developed and post-developed weighted runoff coefficients which are used in the following equation:

$$Vr = \Delta C(R/12)A$$

Where: Vr = Required storage volume in cubic feet
R = precipitation amount for the 100-year, 2-hour storm, 2.19 inches
A = Total disturbed area, 1,782,568 square feet
ΔC = increase in weighted runoff coefficient ($C_{post} - C_{pre}$)

Runoff coefficient values were taken from Figure 4-1.5 of the City of Scottsdale DSPM as 0.30 for turf landscaping, 0.45 for desert landscaping, and 0.95 for pavement/impervious areas. To determine the pre-developed weighted runoff coefficient, aerial imagery and CAD files were used to measure areas of landscaping and imperviousness. It was determined that the pre-developed runoff coefficient is 0.6851 and the post-developed runoff coefficient is 0.7288. Refer to the exhibit in Appendix A and B showing areas of landscaping and imperviousness for both the pre-developed and post-developed conditions. The volume required for the site was then calculated as shown below:

$$Vr = (0.7288-0.6851) \times 2.19/12 \times 1,782,568 = 14,216 \text{ cubic feet}$$

An in-lieu fee based on what it could cost the City to provide a storage basin sized for the calculated volume is $3.00 per cubic foot. Therefore, the total in-lieu fee for this project is calculated as:

$$\text{In-lieu fee} = \$3.00 \times 14,216 \text{ cf} = \$42,648$$

A completed stormwater storage waiver with fee calculation is included in Appendix C for reference.

Appendix A: Runoff Coefficient Exhibit



Weighted 'C' Value - Proposed		
Surface Type	Area (SF)	Runoff Coefficient
Turf Landscape	389,291	0.3
Desert Landscape	282,470	0.45
Pavement	1,110,807	0.95
Weighted 'C' =		0.7288

LEGEND

TURF LANDSCAPE AREA

DESERT LANDSCAPE AREA

GRAPHIC SCALE IN FEET
0 100 200 400

NORTH

WEIGHTED "C" CALCULATION EXHIBIT (PROPOSED CONDITIONS)

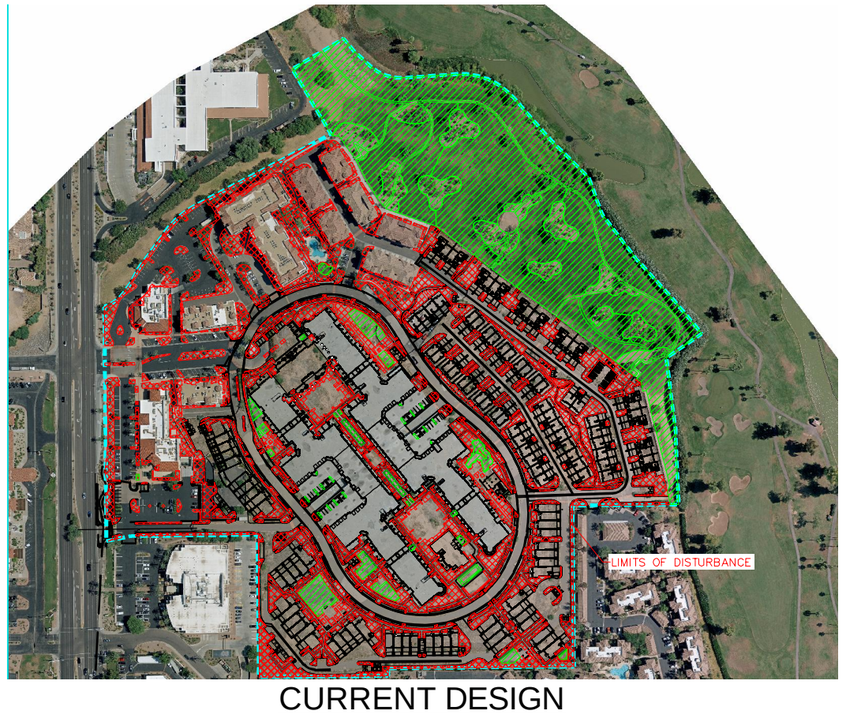
Kimley»Horn

K:\PHX_Civil\201743000 - Artavia 2022\CADD\Exhibits\ARTESIA IMPERVIOUS AREAS.dwg, Nov 03, 2022, Shana.Ashonmen
XREFS: Old Pervious Area Exhibit a Building Base Artavia PA2 CAD FloorPlan-COR_PA1_SITE FloorPlan-COR_PA1_SITEXT FloorPlan-COR_PA3_SITE FloorPlan-COR_PA3_SITEXT x-Aerial xBase xBM xRW BASE_SLR ARTESIA_HARDSCAPE BASE_SLR ARTESIA_Turf and Grass Locations

Appendix B: Pre Vs. Post Exhibit



ORIGINAL DESIGN



CURRENT DESIGN

Weighted 'C' Value - Original		
Surface Type	Area (SF)	Runoff Coefficient
Turf Landscape	585,494	0.3
Desert Landscape	183,378	0.45
Pavement	1,013,696	0.95
Weighted 'C' =		0.6851

Weighted 'C' Value - Proposed		
Surface Type	Area (SF)	Runoff Coefficient
Turf Landscape	389,291	0.3
Desert Landscape	282,470	0.45
Pavement	1,110,807	0.95
Weighted 'C' =		0.7288

Summary Table	
Design Overall 'C' Value	0.7288
Original Overall 'C' Value	0.6851
Delta 'C'	**0.0437**
Distrubed Area (SF)	1,782,568
R	2.19
Volume Required (CF)	14,216
In-Lieu Fee per Cubic Foot (USD/CF)	$ 3.00
Total In-Lieu Fee (USD)	**$ 42,648.00**

LEGEND

TURF LANDSCAPE AREA

DESERT LANDSCAPE AREA

GRAPHIC SCALE IN FEET
0 200 400 800

NORTH

WEIGHTED "C" VALUE DIFFERENTIAL

Kimley»Horn

K:\PHX_Civil_2017430\00 - Artesia 2022\CAD\Exhibits\ARTESIA IMPERVIOUS AREAS.dwg, Nov 03, 2022, Shane.Johnsen
XREFS: Old Pervious Area Exhibit a Building Base Artesia PA2 CAD FloorPlan--COR_PA1_SITE FloorPlan--COR_PA1_SITEXT FloorPlan--COR_PA3_SITE FloorPlan--COR_PA3_SITEXT x--Aerial xBase xBM xRW BASE_SLR ARTESIA_HARDSCAPE BASE_SLR ARTESIA_Turf and Grass Locations

Appendix C: Stormwater Retention Waiver

Request for Stormwater Storage Waiver

City of Scottsdale Plan/Case Numbers:

15 - DR - 2022 _____ - PP - _____ PC#_____

Requests for stormwater storage waivers are reviewed as part of case submittals for the associated project. This form should be included in the preliminary drainage report with the applicant's portion completed. The preliminary drainage report shall include supporting documentation and analysis as needed to support the requested wavier.

Date 11/7/2022 Project Name Artesia

Project Location NEC of Scottsdale Road and Indian Bend Road

Applicant Contact Shane Johannsen Company Name Kimley-Horn

Phone 602-371-4571 E-mail shane.johannsen@kimley-horn.com

Address 7740 N 16th Street, Suite 300, Phoenix AZ 85020

Waiver Criteria

A project must meet at least one of three criteria listed below for the city to consider waiving some or all required stormwater storage. **However, regardless of the criteria, a waiver will only be granted if the applicant can demonstrate that the effect of a waiver will not increase the potential for flooding on any property.** Check the applicable box and provide a signed and sealed engineering report and supporting engineering analysis that demonstrate the project meets the criteria and that the effect of a waiver will not increase the potential for flooding on any property.

If the runoff for the project has been included in a storage facility at another location, the applicant must demonstrate that the stormwater storage facility was specifically designed to accommodate runoff from the subject property and that the runoff will be conveyed to this location through an adequately designed conveyance facility.

It should be noted that reductions in stormwater storage relating to

☑ 1. The development is adjacent to a conveyance facility that an engineering analysis shows is designed and constructed to handle the additional runoff from the site as a result of development.

☐ 2. The development is on a parcel less than one-half acre in size.

☐ 3. Stormwater storage requirements conflict with requirements of the Environmentally Sensitive Lands Ordinance (ESLO).

For a full storage waiver, a conflict with ESLO is limited to:

- Property located in the hillside landform as defined in the city Zoning Ordinance
- Property in the upper desert landform that has a land slope steeper than 5% as defined in the city Zoning Ordinance
- Property within the ESL zoning overlay district where the only viable location for a stormwater storage basin requires blasting

This full waiver only applies to those portions of property meeting one of these three requirements.

100-year/2-hour storage is allowed, but not required for redevelopment projects and development within the ESL zoning overlay. Rather, these projects must store enough stormwater to attenuate post-development flows to predevelopment levels, considering the 10- and 100-year storm events (S.R.C. Sections 37-50 and 37-51).

By signing below, I certify that the stated project meets the waiver criteria selected above as demonstrated by the attached documentat



11/7/2022

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500

Request for Stormwater Storage Waiver

City of Scottsdale Plan/Case Numbers:

____ - DR - ___ ____ - PP - ____ PC#_____

CITY STAFF TO COMPLETE THIS PAGE

Project Name Artesia

Check Appropriate Boxes:

☐ Meets waiver criteria (specify): ☐ 1 ☐ 2 ☐ 3

Recommended Conditions of Waiver:

☐ All storage requirements waived.

☐ Post-development peak discharge rates do not exceed pre-development conditions.

☐ Other:

Explain: _____

_____

☐ **Waiver approved per above conditions.**

_____ _____

Floodplain Administrator or Designee Date

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500

Request for Stormwater Storage Waiver

City of Scottsdale Plan/Case Numbers:

____ - DR - ___ ____ - PP - ____ PC#_____

In-Lieu Fee and In-Kind Contributions

In-lieu fees are only applicable to projects where post-development peak discharge rates exceed pre-development levels, based on the 10- and 100-year storm events. If the city grants a waiver, the developer is required to calculate and contribute an in-lieu fee based on what it would cost the city to provide a storage basin, sized as described below, including costs such as land acquisition, construction, landscaping, design, construction management, and maintenance over a 75-year design life. The fee for this cost is $3.00 per cubic foot of stormwater storage for a virtual storage basin designed to mitigate the increase in runoff associated with the 100-year/2-hour storm event. The applicant may submit site-specific in-lieu fee calculations subject to the Floodplain Administrator's approval.

The Floodplain Administrator considers in-kind contributions on a case-by-case basis. An in-kind contribution can serve as part of or instead of the calculated in-lieu fee. In-kind contributions must be stormwater-related and must constitute a public benefit. In-lieu fees and in-kind contributions are subject to the approval of the Floodplain Administrator or designee.

Project Name Artesia

The waived stormwater storage volume is calculated using a simplified approach as follows:

$V = \Delta CRA$; where
V = stormwater storage volume required, in cubic feet,
ΔC = increase in weighted average runoff coefficient over disturbed area ($C_{post} - C_{pre}$),
R = 100-year/2-hour precipitation depth, in feet (DSPM, Appendix 4-1D, page 11), and
A = area of disturbed ground, in square feet

Furthermore,

$V_w = V - V_p$; where
V_w = volume waived,
V = volume required, and
V_p = volume provided

R = 2.19
ΔC= 0.0437
A = 1,782,568 SF
V = 14,216 CF
V_p= 0
V_w= 14,216 CF

☑ An in-lieu fee will be paid, based on the following calculations and supporting documentation:
In-lieu fee ($) = V_w (cu. ft.) x $3.00 per cubic foot = $42,648

☐ An in-kind contribution will be made, as follows:

_____
_____
_____

☐ No in-lieu fee is required. Reason:

_____
_____

Approved by:

_____ _____
Floodplain Administrator or Designee Date

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500